ANNUAL REVIEW NUMBER

COTTON

Volume 83
Number Three
Twenty Cents a Copy

JANUARY, 1919

Published Monthly by
W. R. C. Smith Publishing Co.
Dalton, and Atlanta, Ga.

"Come what may-*our* Mill is Safe!"

Thieves, tramps, rioters or any other miscreants would be equally powerless to injure your mill or interfere with its orderly operation were it protected by an

ANCHOR POST FENCE of Chain Link Woven Steel

Exact size of wire and mesh

CATALOG

A text book on Protective Factory Fences will be mailed promptly upon request.

ANCHOR POST IRON WORKS
167 Broadway, New York and
EMPIRE BLDG.,
ATLANTA,
GA.

Anchor Post Fences

Table of Contents, page 55 Buyers' Index, page 256. Advertisers' Index, page 254.

PORCELAIN GUIDES
for
Textile Machinery
Mitchell-Bissell Co.
251-255 Fourth Avenue, New York
Send for
New Catalogue

Start the New Year Right

by ordering

NORTHROP LOOMS

Trade-Mark

Compared with common looms, they will save 50 to 75 per cent of the labor cost of weaving.

They will weave better goods and more of them in the same time.

The Northrop Loom is the generally adopted standard for goods that can be woven with one shuttle.

DRAPER CORPORATION

HOPEDALE MASSACHUSETTS

Southern Office
185 South Forsyth Street Atlanta Georgia

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QUALITY PAPER SERVICE

Good Wrapping Paper Is a Business Getter

THE packages which you send out may be regarded as your representatives; they constitute points of contact between you and your customers. As is the case with your salesmen, you should expect your packages to make good impressions.

Neat packages wrapped in a high quality paper such as Ammonoosuc, will please your customer and create an attitude of confidence. He will know the same methods of neatness and efficiency are employed in your plant.

You take particular pains in filling "first orders," because you realize the psychological importance of "first impressions." Remember the wrapping paper is seen *first* on *every* delivery.

AMMONOOSUC

is especially made for textile mills requiring a QUALITY paper in every respect; contains 100% Sulphite; absolutely no ground wood or filler used in its manufacture. It is exceptionally strong and serviceable.

Made in White, Buff, Salmon, Green and Blue. From these you can select one which will make your package "stand out" and be recognized at sight. Ammonoosuc is manufactured in one of the oldest and best equipped mills in the country. Made in weight 24x36-40 pounds and heavier on machine trimming 144 inches.

We also manufacture other high grade papers, such as **A-MANILA; B-ENVELOPE MANILA; C-MANILA; OSCO FIBRE; K-FIBRE; OILED PAPERS; WAXED PAPERS.**

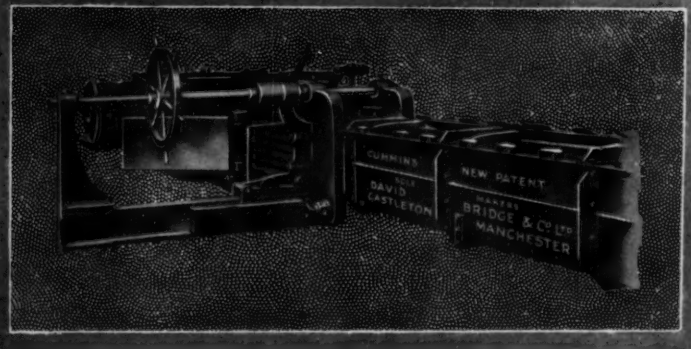
Are you proud of your product? Then wrap it in paper worthy of it. Samples, prices and name of nearest dealer sent on request.

ODELL MANUFACTURING COMPANY

Paper and Pulp Mills
Groverton, N. H.

527 FIFTH AVENUE, NEW YORK

HIGH DENSITY



COTTON BALING PRESS

CUMMINS' New Patent Horizontal End-Pressed Baling Presses have entered the American cotton industry to revolutionize the method employed in baling cotton for both export and home consumption.

It is the modern press—high density—56 lbs. to the cubic foot—considerably less than half the size of the present compressed bale produced in this country.

That it will prove a large factor in the future of the cotton industry is revealed from the fact that intense interest is centered in the marvelous results of the Cummins' High Density Press.

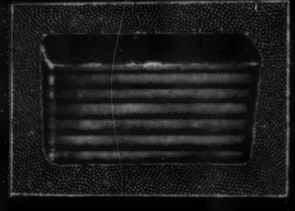
The picture above shows a section from the Cummins' Baling Press. The one below shows the result—the finished bale.

Write for further information and illustrated catalogue to

W. D. CRUMPTON

American Representative

29 BROADWAY NEW YORK, N. Y.



56 POUNDS PER CU. FOOT.

David Bridge & Co. Ltd. —Manchester, England.

DUCK LOOM

AUTOMATIC DUCK LOOMS

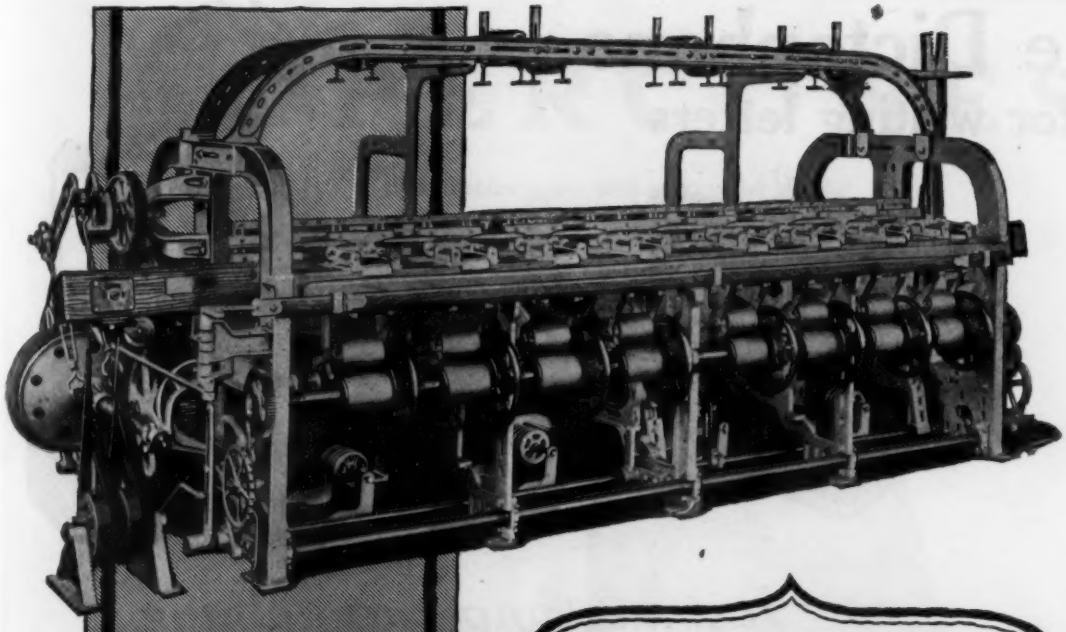
We make automatic looms for all manner of textile fabrics. Plain or fancy, coarse or fine.

The product of these looms is unsurpassed in quality and the cost of weaving shows wonderful savings

"IDEAL" The Stafford Company "IDEAL"

Readville, Mass.

Southern Office - - - - - - - - - CHARLOTTE, N. C.



MEDIUM WEB LOOM—

This loom covers the requirements for webbing and asbestos brake-linings —weaving up to 3 inches in width, 8 spaces, 10 feet 6 inches between frames, 9 harness frames. One operator takes care of two of these looms.

Write for further information about looms for weaving all narrow fabrics.

FLETCHER WORKS

Formerly Schaum & Uhlinger

Glenwood Ave. and Second Street

PHILADELPHIA, U. S. A.

The Dictaphone—
for writing letters

Just as simple as talking

You use The Dictaphone like you use the telephone—slip the receiver off the hook and *talk*.

Both exist for the same purpose—to transmit messages in the quickest and most direct way. The telephone transmits verbal messages, The Dictaphone written messages.

Both are instruments of 24-hour convenience. They can be used any hour of day or night that you desire to use them.

One is as simple and convenient to use as the other. Both are mechanically perfect. Both are absolutely reliable.

If anything, The Dictaphone is a little bit the surer of the two, because you can always write to your party, even though you can't always reach him by phone.

In many leading textile concerns, these are the two busiest office conveniences.

15-MINUTE DEMONSTRATION

On request, The Dictaphone man will call with a machine, and prove in just fifteen minutes that The Dictaphone will mean more letters for you at less cost, no matter how technical your correspondence. He asks just fifteen minutes. Phone or write for a demonstration today.

THE DICTAPHONE

Registered in the U. S. and Foreign Countries

Dept. 137-A Woolworth Building, New York City

Branches Everywhere ***Write for booklet, "The Man at the Desk."***

There is but one Dictaphone, trade-marked "The Dictaphone," made and merchandised by the Columbia Graphophone Company

"The Shortest Route to the Mail-Chute"

SUPERCONES

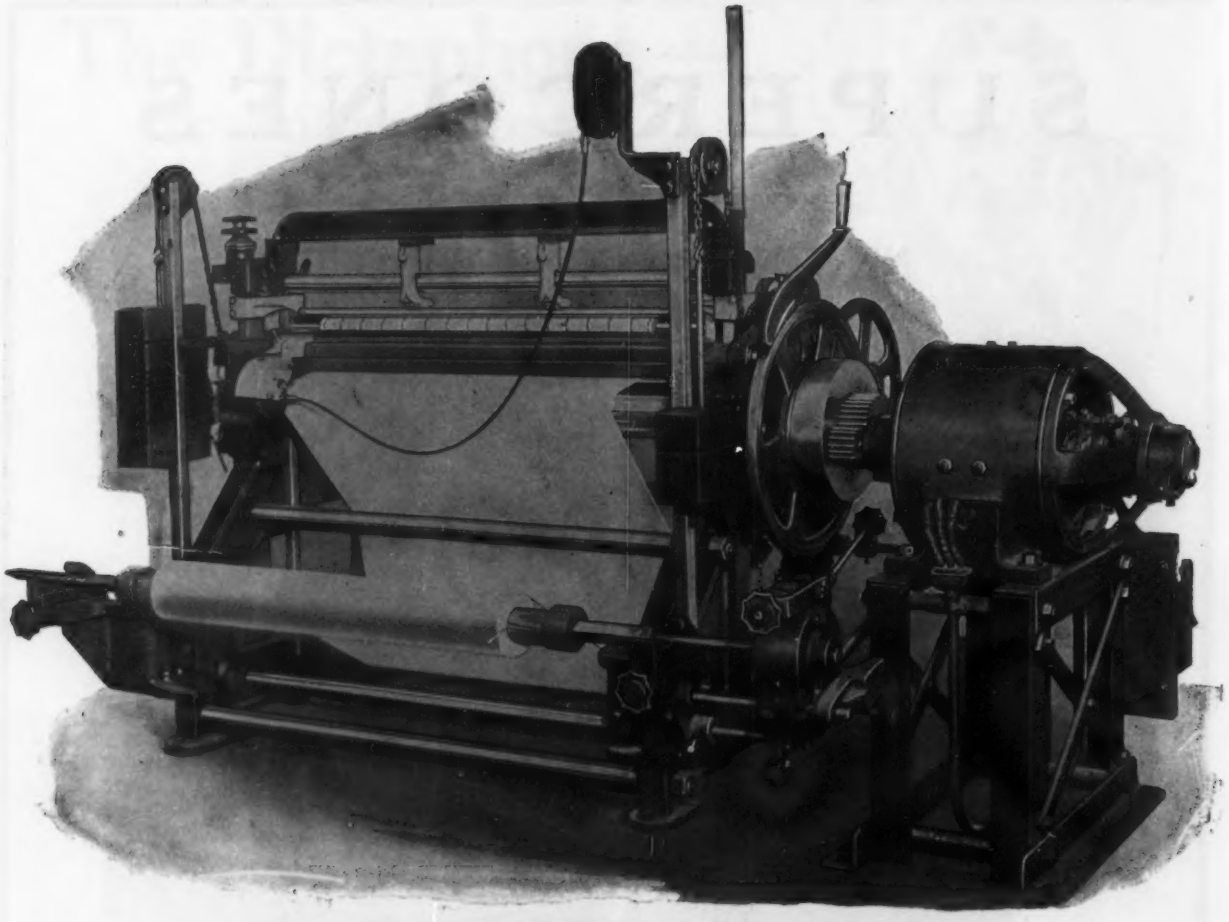
Descriptive pamphlet on request of the

NEW No. 80 CONE WINDER

IN THE SUPERCONE we have successfully modeled a supply for knitting machines which not only contains more material than any style of package previously produced, but also, by reason of its progressive build, insures a uniform delivery of material heretofore unequaled by either cone or bottle bobbin. The SUPERCONE is EIGHT INCHES long, with a possible maximum diameter of TEN INCHES. The net weight of a full-sized package ranges from FOUR to SIX pounds, depending upon the material wound. A cone of this size presents the greatest advantage for coarse counts, including sweater yarn.

UNIVERSAL WINDING COMPANY, BOSTON

Southern Representative, Mr. Frederick Jackson, Charlotte, N. C.



CAMERON

SLITTING AND REWINDING MACHINE

for converting wide webs into firm rolls of strip

The enormous demand for material in the form of strip in rolls or coils has made the Cameron Principal Slitting and Rewinding Machine an important part of the textile manufacturer's equipment. If one considers only briefly, the many uses for strip or tape cut from broad webs of various materials, the list would be a very long one indeed. Manufacturers of flags, automobile tires, typewriter ribbons, canvas belting, carriage and auto tops, upholstery, surgeons' bandages, manufacturers of electrical insulation, tape, corset manufacturers and the immense requirements of the manufacturers of clothing, shoes, underwear, bindings and trimmings make the Cameron Machine a profitable investment for the up-to-date textile mill man. The market for goods furnished in this form seems to be unlimited.

The Cameron Machine can be hooked up to your present machines and is capable of converting over ten thousand yards of wide fabric into strips, per day.

Let us send you interesting particulars, catalog and other literature.

Cameron Machine Company

57-61 Poplar Street, Brooklyn, N. Y.

Canadian Agents: Toronto Type Foundry, Ltd., Toronto, Canada.

British Agents: Canadian-American Machinery Co., 8 Bouverie St., London, Eng.

POINTERS FOR POWER HOUSE MEN

Taken from Circular 2032 "Fuel Saving Suggestions"–

—The first thing to do in any plant, anywhere, whether you have stokers or not, is to keep the boiler heating surfaces free from soot, scale or oil.

—Keep the fires level and free from blow holes.

—Don't keep the fires so thin that excess air will be drawn in.

—Don't carry the fires so thick that incomplete combustion will result.

—Do not soak the coal with water before firing.

—Be sure the blow-off valves do not leak.

—Do not have the safety valves popping off continually.

—Cover steam pipes.

—Do not waste steam through leaky valves or traps.

—Never use live steam if exhaust steam is available and can be used as well.

—Give your fireman an opportunity to acquire the fundamentals of fuel burning.

—If you have a difficult fuel problem, consult a combustion engineer.

—Use gages to indicate exactly the condition of fire bed at all times. As a minimum, these gages should consist of draft gage indicating draft in furnace above fuel bed, draft gage indicating draft at boiler side of flue damper, and a steam flow meter for individual boilers.

—CO_2 is the principal product of complete combustion of coal; 10 to 12% CO_2 should be obtained in flue gases to insure minimum fuel loss.

—Do not permit grates to clog. A systematic method of keeping air spaces clean should be followed.

—Inspect baffles in boilers, as broken or leaky baffles mean high flue gas temperatures and waste of coal.

—Prevent cold air leaking in around boiler setting.

—Clean scale from tubes. Every particle of scale represents wasted coal.

—Avoid soot formation. All boiler tubes should be blown externally once every eight hours when in continuous service.

—Locate dampers in front of boilers so fireman will adjust them as required.

Write for Circular 2032.

Westinghouse Electric & Mfg. Co.

East Pittsburgh, Pa.

W WESTINGHOUSE ELECTRIC

With high combustion efficiency and an overload capacity of from 200 to 300%,-- the Westinghouse Underfeed Stoker does away with idle equipment, the spare boilers, and the banked fires–which are so wasteful of fuel.

Westinghouse

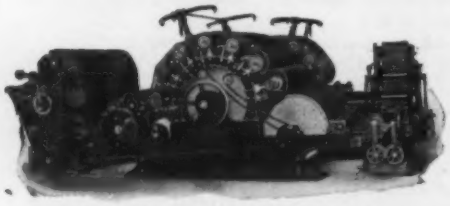
SMITH & FURBUSH MACHINE CO.

PHILADELPHIA

Specialists in machinery for various kinds of WASTES. Builders of Carding and Spinning Machinery for Wool, Asbestos, Cotton-waste and other yarns spun on the wool principle.

Garnetts and Shoddy Machinery. Bat or Felting Machinery, Machinery for wiping and car-box waste.

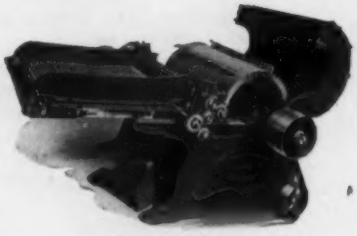
Complete equipments for Rewoven Gunny.



Two Card Set for Cotton Waste.

Ask for Circular S 44

This is one of the carding units in a plant for making mop, cordage or other yarns from cotton waste.



Jute Picker

Circular S 82

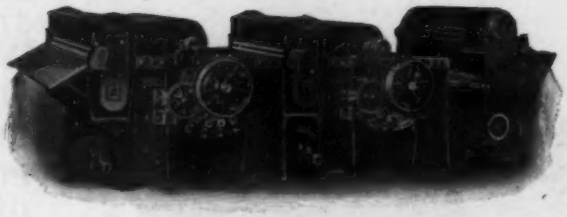
This machine is used for opening Gunny and Burlap, forming a part of our equipment for the manufacture of Rewoven Gunny Bagging.

Our continuous Outfit removes the loose dirt, dust and bits of iron, wood, etc., from low grade Cotton Waste.

Continuous Outfit for Cotton Waste

Ask for Circular S 9

The Shaughnessy Reclaimer does work not done by any other machine in recovering spinning fibre from low grade Cotton Wastes.



Cotton Waste Reclaiming Machine

(Shaughnessy Patent)

Ask for Circular S 90

Carrier Equipment Plus Carrier Engineering Service Assure Complete Satisfaction in Humidifying, Cooling, Heating and Ventilating

THE Carrier System of humidifying textile mills possesses the following distinct advantages:

Our system cools the spinning room to two degrees of or below the outside temperature in summer, insures uniform heating and temperature regulation in winter, and in both summer and winter maintains and controls different humidities in different parts of the mill.

The entire humidifying, cooling and heating plant is centrally located at one point. Each department can be controlled at the apparatus or at each separate room as desired. If necessary, the system can be arranged to provide for local conditions.

Working operations of the apparatus are very simple, in plain sight and involve no complicated parts to get out of order. The sprays are readily accessible and the spray water may safely be recirculated without other filtration than provided by the apparatus. Only a small part of the time of one man is required to care for the entire humidifying, cooling and heating equipment.

Humidifies and cools the air before, not after, entering the room.

Gives a very uniform humidity throughout, due to the absence of a direct spray in the room. The air is saturated and all excess moisture removed so that every cubic foot of air going into the mill carries exactly the same amount of water vapor.

Procures saturation of the air introduced into the mill in summer without the use of steam, effecting a saving and giving the greatest cooling effect.

The regain is kept practically constant, thereby assuring a very uniform product.

With the desired humidity being maintained, the rooms are cooled to a lower temperature than could be done with other systems, even with all windows opened.

No dependence on uncertain and insufficient air leakage in and out of the mills for cooling effect.

Humidified and cooled air delivered to work rooms under slight pressure and so as to avoid drafts. Inward leakage of hot air in summer and of cold, dry air in winter are thereby prevented, an essential feature for uniform humidity and temperature conditions.

Cools the rooms without opening windows in summer, thereby avoiding window drafts—disastrous to fine yarns.

Humidity automatically controlled at any desired per cent, and by very simple and accurate mechanism.

All entering air is thoroughly washed and all dirt, soot and dust are removed. Opening of windows is never necesssary or desirable, except when necessary to allow heated air to escape from the building, so the product is kept cleaner.

Permits a large portion of the air to be recirculated when heating in winter, thereby effecting great economy. At the same time, such recirculated air is thoroughly freed from all impurities such as "fly," dust or other organic matter injurious to health.

Thorough ventilation. The copious supply of clean, pure, fresh air enables the employees to do more and better work, by reason of enjoying better health. Better working conditions attract a better grade of help.

No steam or water piping strung along the ceiling. Piping here is not only very inefficient in heating, but catches dust and lint, which eventually drop off and cause inequalities in the yarn and increase quantity of seconds.

Removes fully two-thirds of all the "fly" and dust ordinarily associated with card and spinning rooms, thus greatly improving the working conditions for the operatives, and at the same time improving the quality and uniformity of the yarn.

A Carrier-equipped mill is always distinguished by the noticeable absence of odors, dust and oppressive atmosphere, so usual in many mills.

Water vapor only introduced into the mill. All water in liquid form retained in apparatus where there is no chance of leakage onto product.

Write for our book

"The Carrier System as Applied to Textile Mills"

Carrier AIR CONDITIONING AND DRYING EQUIPMENT

Carrier Engineering Corporation

39 Cortlandt St., New York

Chicago: Transportation Bldg. Boston: 176 Federal St. Buffalo: Mutual Life Bldg. Philadelphia: Land Title Bldg.

Carrier AIR CONDITIONING AND DRYING EQUIPMENT

Why the Modern Textile Mill Needs Humidifiers

A Modern Textile Mill.

Great grandmother didn't need humidifiers to successfully run her spinning wheel.

Grandfather didn't need humidifiers very much in his old stone mill, where the fog from the tail race gave him all he wanted when the wind was right. Father didn't need humidifiers very much either —or if he did—successfully solved his problem with vapor-pots.

So the question is—why do you need humidifiers?

The early textile manufacturers did not need to think of artificial humidity. Factory operations had so lately superseded manual operations, speeds were slow; and if textile operations are done slowly enough, they may be accomplished without developing that enemy to speed —fractional electricity.

Slow speeds mean a low mechanical equivalent of heat. High speeds mean a high mechanical equivalent of heat. These high speeds—developing so much heat mean that the surrounding air has to have more—and still more moisture to neutralize it.

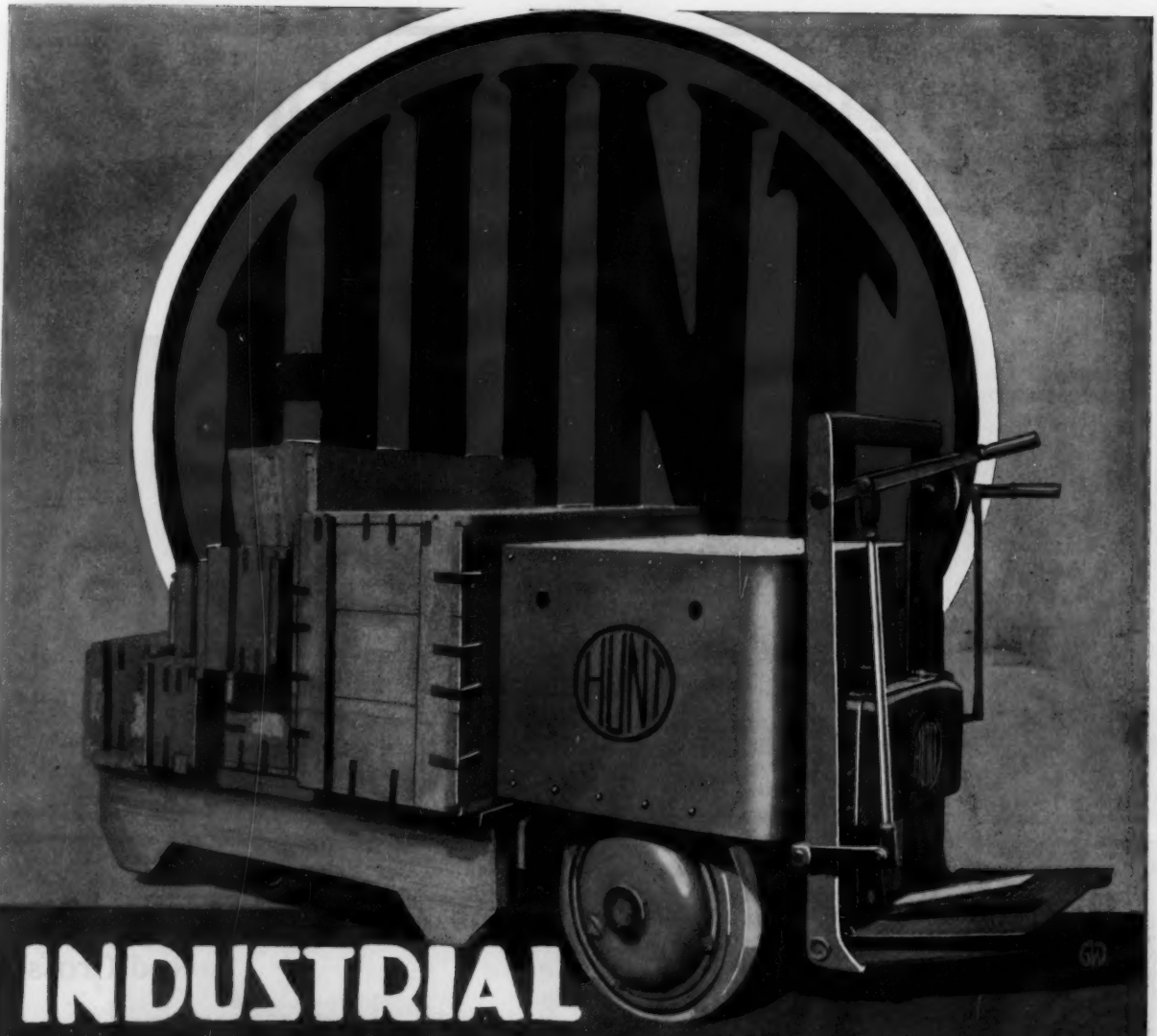
But you—with your modern mill operated at speeds that while you take them for granted, are as spectacular as that of a Mauretania compared with a Mayflower —you need an atmospheric condition higher in humidity and one that does not vary from hour to hour, from day to day, from week to week, or from season to season.

That's why the modern textile mill needs humidity. That's why humidifiers are essential to your keeping up in the race for greater production—more uniform and better product—and lowered costs.

America's First Cotton Mill.

Parks - Cramer Company

Fitchburg **Charlotte** **Boston**



INDUSTRIAL STORAGE BATTERY TRUCKS

THE severe service demanded of an electric truck for the handling of materials in textile mills, factories and warehouses, calls for a design and construction which combine simplicity and great strength. In Hunt Trucks and Tractors these features have been obtained by a careful consideration of materials and processes and by our forty-six years of experience in the design and manufacture of material-handling apparatus.

In most cases the load-carrying truck has been found to be the most economical unit, but for some classes of service, tractors and trailers can be used to great advantage, in particular where the length of haul and tonnage warrant the continuous operation of the tractor, while the trailers are being loaded or unloaded.

Our service department will gladly cooperate in devising efficient haulage systems. Write for catalogue W-16-1.

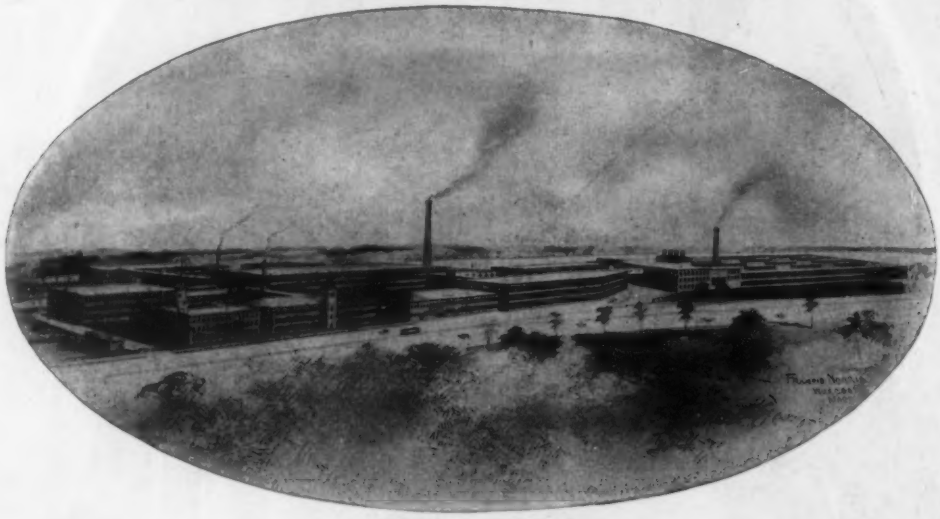
C. W. HUNT CO., Inc.
NEW YORK

Sales Office, 501 5th Ave., at 42nd St.
Works and Executive Office: West New Brighton, N. Y.

Branch Sales Offices:
Chicago Washington Boston Philadelphia

WHITIN MACHINE WORKS

TEXTILE MACHINERY



Main Office and Works
WHITINSVILLE, MASS., U. S. A.
Branch Office, Charlotte, N. C.

BLANKETS
Army
Navy

TOWELS
Hospital
Red Cross

LOOM
WITH
MAGAZINE

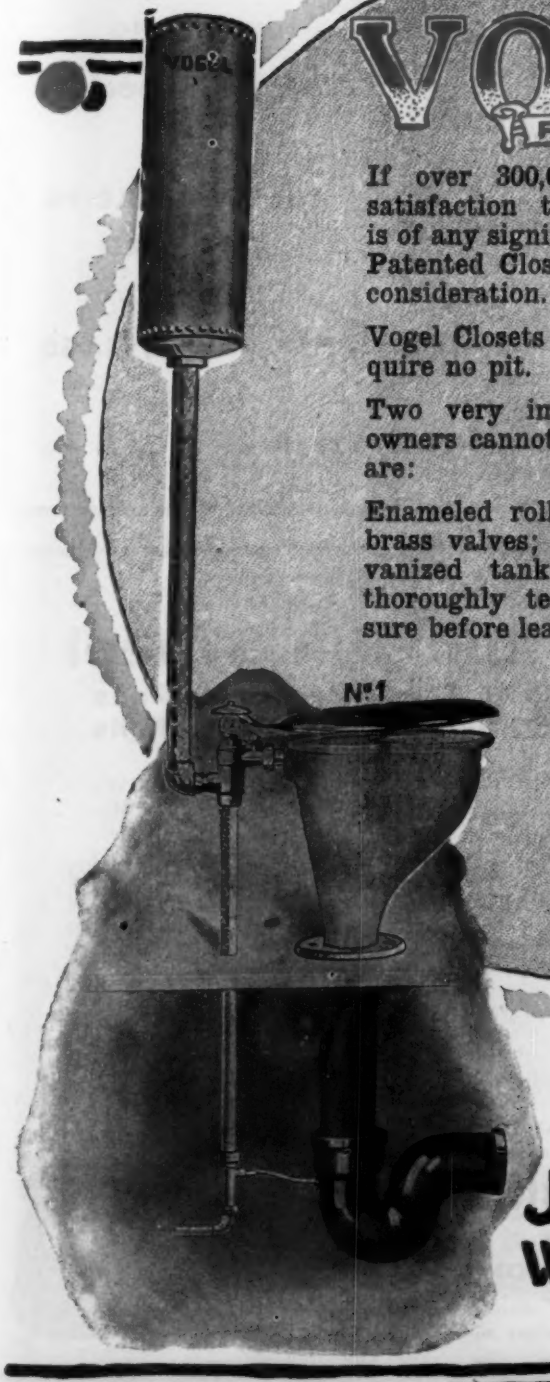
DUCK
Tent
Sail

UNIFORM CLOTH
Army
Navy

CROMPTON & KNOWLES LOOM WORKS,
WORCESTER, MASS.

Providence, R. I. Philadelphia, Pa. Paterson, N. J.
Alexander & Garsed, Charlotte, N. C., Southern Representative.

Vogel Closets
Most Durable Made



VOGEL
PATENTED

If over 300,000 closets giving absolute satisfaction twelve months in the year is of any significance to you, then the Vogel Patented Closet should have your earnest consideration.

Vogel Closets are frost proof and they require no pit.

Two very important features that mill owners cannot afford to overlook. Others are:

Enameled roll flushing rim bowls; heavy brass valves; strong hardwood seat; galvanized tank; malleable seat castings; thoroughly tested under hydraulic pressure before leaving the factory.

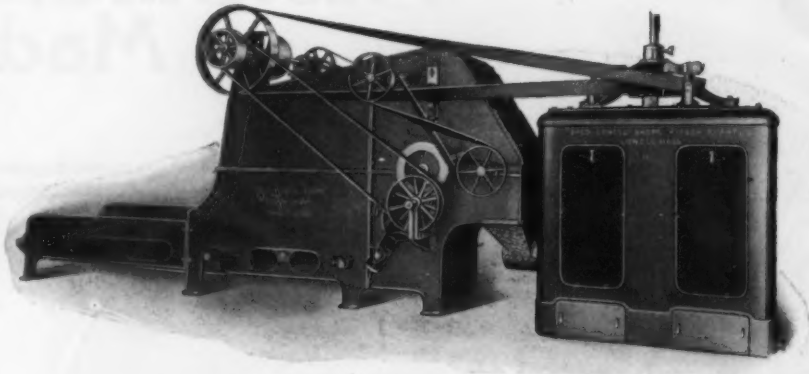
The ideal water closets for factories and mill villages.

Sold by jobbers everywhere.

JOSEPH A. VOGEL CO.
WILMINGTON, DELAWARE

SACO-LOWELL SHOPS

TEXTILE MACHINERY



OPENING EQUIPMENT

INCLUDING

Vertical Openers

WITH

BALE BREAKERS ATTACHED

SHOPS

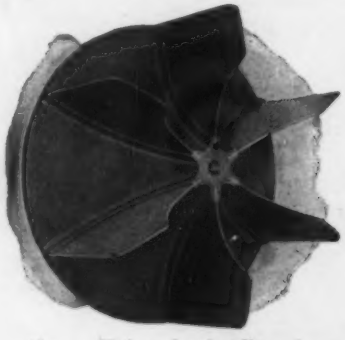
BIDDEFORD, ME. LOWELL, MASS. NEWTON UPPER FALLS, MASS.

EXECUTIVE OFFICES

BOSTON, MASS.

ROGERS W. DAVIS, Southern Agent, CHARLOTTE, N. C.

BRANCH OFFICE, GREENVILLE, S. C.



Here's the Fan Wheel

That Has Made These Reversible Fans So Universally Successful in Cotton Mills

This fan wheel is the secret of the success of our reversible fans for conveying Cotton, Wool, Rags and Stringy Material of any kind.

This fan wheel is constructed with a cone-shape back of cast iron with sheet steel blades cast solid. Note the short overhang, which makes the fan run smoothly without vibration. This wheel offers less resistance to material passing through than any other wheel. It handles long, stringy material just as good as short material or lint.

And it's reversible.

The fan is built solid and runs without a tremor at maximum speed. No buckling of suction at high speed. No rivets to work loose. Universal adjustment of bearings, not simply up and down.

Made in any size, from 30 to 60 inch.

Folder R. F. explains fully. Ask for it today. Our catalogs No. 65 and 67 show complete line of fans and blowers for every class of work.

We have a large stock of repair parts which can be shipped at a moment's notice.

BUILT RIGHT RUN RIGHT

The New York Blower Co.

Main Office: Archer Ave. and Canal Street, CHICAGO, ILL.

Works: BUCYRUS, OHIO.

Leader-News Bldg. Cleveland, O. | Ridge Arcade Bldg. Kansas City, Mo. | 502 Plymouth Bldg. Minneapolis, Minn. | 303 B. F. Jones Bldg. Pittsburgh, Pa. | 370 Central Ave. East Orange, N. J.

E. C. Atkins Co., Memphis, Tenn., Southern Representatives.

BUY THE BEST!

Buy

"Leatheroid" RECEPTACLES

Constructed of superior fibre—Smooth Finish—Best for service and for standardization of your mill equipment.

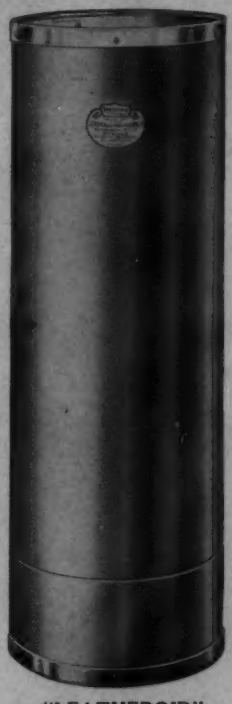
This is a standard box for mills, strong and well constructed.

☛Note the new steel corners protecting.

"LEATHEROID" NO. 1 SEAMLESS ROVING CAN.

Patented "Leatheroid" rolled top, rolled in and under two and one-half times, having no steel rim underneath the roll to break the can. Solid steel bottom, steel chime, 6 in. kicking band. 10 x 36, 12 x 36.

"LEATHEROID" FACTORY BOX NO. 3



"LEATHEROID" NO. 2 SEAMLESS ROVING CAN.

Latest improved construction, polished steel metal top rim, solid steel bottom, steel chime, 6 in. kicking band. 10 x 36. 12 x 36.

Other sizes riveted.

SOLD BY THE

Leading Southern Mill Supply Houses

"LEATHEROID" NO. 3 MILLHOUSE CAR.

Standard Sizes:

32 x 18 x 18	42 x 24 x 28
36 x 24 x 24	48 x 30 x 30

"LEATHEROID" COMBINATION DOFFING CAR.

Stationary Box	12 x 12 x 18
Loose Box	18 x 12 x 18

Many other sizes.

"LEATHEROID" STEEL-CLAD NO. 2 CAR.

Standard Sizes:

32 x 18 x 18	42 x 24 x 28
36 x 24 x 24	48 x 30 x 30

Rogers Fibre Company

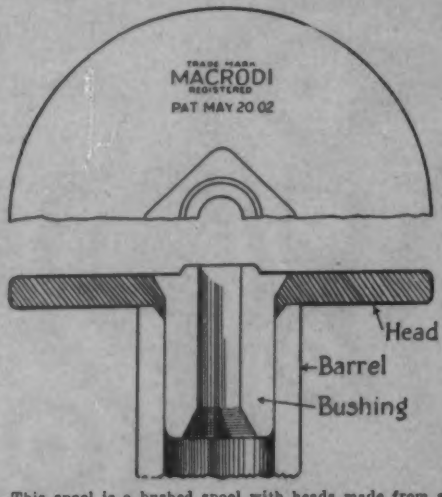
Leatheroid Sales Division

1024 Filbert Street, Philadelphia, Pa.

WHAT?

and the Answer—

To those not acquainted with the MACRODI FIBRE HEAD SPOOL, the question naturally arises what is this spool and what are its advantages.



This spool is a bushed spool with heads made from a specially prepared fibre and with a wooden barrel. The construction is patented.

Fourteen years of the hardest kind of mill use have absolutely demonstrated these features of the MACRODI FIBRE HEAD SPOOL.

DURABILITY—As the fibre heads are made from a specially prepared fibre which has no grain to it, as has wood, these heads will not chip, break, crack or warp. Consequently this spool is much more durable than the ordinary wooden spool.

ECONOMY—Scores of mill men have demonstrated to their own satisfaction that this spool saves them not only in actual spool breakage, but also in the attendant loss of yarn. The value of broken spools—as you know—is much less than the value of the yarn lost through broken spools. Careful figures kept over a period of years by some of the largest mills prove these facts beyond question.

ADDED TRAVERSE—The most radical feature of this spool is the added traverse made possible on account of the difference in thickness between the fibre heads and the heads of the ordinary wooden spool. The fibre heads are only one-quarter of an inch in thickness whereas the wooden heads are generally one-half inch in thickness. This difference in thickness may be added to the traverse of the MACRODI FIBRE HEAD SPOOL, giving you one-half inch longer traverse than on the wooden spool of the same length. To illustrate:—a wooden spool with 5" traverse is 6" over all, whereas the MACRODI FIBRE HEAD SPOOL 6" over all would have a 5½" traverse. This extra one-half inch traverse allows you to wind 10% more yarn on the MACRODI FIBRE HEAD SPOOL with 5½" traverse than on the wooden spool of corresponding outside dimensions. This added traverse means increased yardage, and often another wrap on the beam. Progressive mill men have found that the added traverse has enabled them to materially cut costs.

The operatives prefer the MACRODI FIBRE HEAD SPOOL as the heads are very smooth on the inside and the yarn does not catch or break in spooling and warping.

The economy and durability of the MACRODI FIBRE HEAD SPOOL, and the advantages of the increased traverse are facts proved to the satisfaction of hundreds of mill men throughout this country.

DELIVERIES—We made a specialty of prompt deliveries guaranteeing shipment in from two to four weeks after receipt of order.

Macrodi Fibre Co., Woonsocket, R. I.

MACRODI
Fibre Head Spools

Helping the Workmen to Help You

Provide them with trucks that push easily, that stand the handling of energetic workmen, that are tough and durable because of the material of which they are made. Such trucks are

Diamond-Fibre Trucks

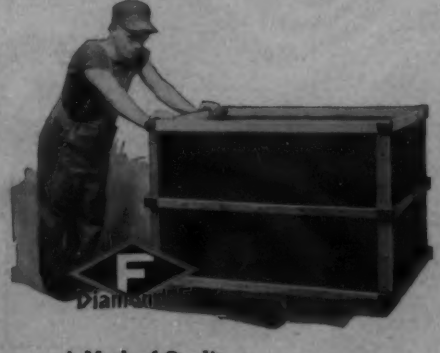
They have the finish and workmanship that denote care and judgment in designing and manufacture. Reinforcements of hard wood. Top edges as well as insides are smooth. The color is thoroughly incorporated in the fibre, therefore it will not chip off and cause the truck to become unsightly.

We make a full line of mill receptacles. We can take care of your requirements; send us your specifications.

Diamond State Fibre Company

Bridgeport, Pa. (Near Philadelphia)

Offices in Principal Cities.



This truck has semi-noiseless self-oiling, non-breakable castors.

A Mark of Quality
A Sign of Service

KEYSTONE

FIBRE AND STEEL CLAD TRUCKS
PEERLESS SEAMLESS ROVING CANS
DOFFING BOXES
GILL CANS BARRELS

QUALITY FIRST

Ask for Catalogue D

KEYSTONE FIBRE COMPANY

YORKLYN, DELAWARE

BOSTON
117 Lincoln Street

GREENVILLE
Wilson Company

RECEPTACLES

Special Message to Southern Mills

Conserve your employees. Hasten your efficiency by giving First Aid on the spot. Substantial and complete equipment furnished by those who know how.

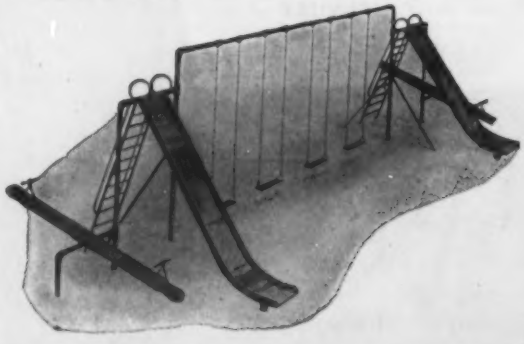
F. H. Thomas Company, 689-691 Boylston St., Boston, Mass.

FUN-FUL Playground Apparatus

will help you solve your labor, community and general reconstruction problems.

Our line includes Swings, Slides, See-Saws, Ocean Waves, Giant Strides, Outdoor Gymnasia, and all necessary Athletic Goods.

More than **Seventy-Five Southern Cotton Mills** have recently purchased "Fun-Ful" Apparatus. Ask them if it pays. We will send list of customers if desired.



Write for free catalog today.

HILL-STANDARD CO.,
1918 Fun-Ful Avenue, Anderson, Ind.

Edward Ferger,
Southern Representative, 276 Lucille Ave., Atlanta, Ga.

THE FUN-FUL LINE
PLAYGROUND EQUIPMENT

Tare Beam for automatic deduction of tare weight.

Dormant Platform Type.

"Load and Look"

Kron Scales

AUTOMATIC Made in U. S. A. **SPRINGLESS**

All Metal Construction

SAVE TIME—LABOR—MONEY

Kron Scales eliminate all false motions. There's no waiting for the pointer to come to rest—no fussing with weights. There's no chance for errors or guesswork.

Think of how much time and labor Kron Automatics save.

Under the most exacting weighing conditions, in industrial plants of every description, Kron Scales are daily proving their worth.

Made in types to meet every requirement. Any capacity.

Write today for complete information, and remember we shall be pleased any time to discuss your weighing problems with you and give you competent advice on methods of installation.

American Kron Scale Co.

422 East 53rd St., New York

Branch Offices: Boston, Providence, Philadelphia, Pittsburgh, Baltimore, Chicago, Cleveland, Detroit, Minneapolis, San Francisco, Wilson, N. C.

Southern Office: 405 Urban Bldg., Louisville, Ky.

CANADIAN KRON SCALE CO., MONTREAL, CANADA

This Roving Can Is the One You Should Use

Laminar Roving Cans wear long because they are made of VUL-COT Fibre, a hard, tough hornlike material that will not dent, crack or splinter.

Though very strong and durable, "Laminars" are light. They are smooth inside and out no splinters to catch in roving. Laminars will last many years —they are permanent Mill Equipment. Hundreds of satisfied mill operators have abundant evidence on hand to prove that Laminars are both **good** and **unusual**. They have been in the lead for over a quarter century.

Laminar Roving Cans are made in a number of styles, both seamless and riveted, with variety as to size, finish and weight of fibre. Full particulars, with sample of material, illustrations of our standard cans, etc. will be sent upon request. Write today.

LAMINAR Roving Cans

American Vulcanized Fibre Company

Sole proprietors and manufacturers

New England Department, 12 Pearl St., Boston, Mass.

C. C. Bell, Vice-President, Resident Manager

Head Office and Factories, Wilmington, Delaware

Smooth as a Fish — Sound as a Bell

Speed Now for Your Own Sake

Record production is no longer of much importance to your Government, but it's of great importance to ***you*** in meeting competition.

You will have to keep up the speed of production to keep down the *cost* of production. You'll have to keep each operative "on his toes"—as you can by getting reports from

Veeder COUNTERS

Veeders will tell you what machines are producing at the fastest rate possible, and the lowest cost possible.

The Loom Pick Counter shown at right registers loom output in picks, in units of 100 or 1000, as ordered. Instrument shown counts up to 1,000,000 picks—then repeats.

This counter is intended to be driven by the crankshaft, and cannot be made to mislead employer or operater.

The above Loom Pick Counter (and the Hank Counter below) show in plain figures the exact amount of work done, saving possible mistakes and disputes.

The Hank Counter illustrated on left records the output of machines where the product is ejected by rollers—such as Cards, Lappers, Combers, Twisters, Drawing, Roving, Ring Frames, Mules, etc.

Usually geared to record in hanks of 840 yards each.

Counters specially made for the different textile machines are shown in the Veeder booklet—copy on request.

The Veeder Mfg. Co.

6 Sargeant Street Hartford, Conn.

The Palmer Adjustable Thread Guide

For Ring Spinning and Twisting Frames

Easily adjusted.

Extreme accuracy and permanence of setting.

Cheapest of them all.

Mail guide-block for free sample.

Patented and manufactured by

THE I. E. PALMER COMPANY

Middletown, - - - Connecticut

AMERICAN SUPPLY COMPANY

PROVIDENCE, R. I.

MANUFACTURERS OF

Loom Harness,
Weaving Reeds,
Oak Tanned Leather
Belting, Strapping,
Etc.

We make a specialty of Harness for Warp Drawing Machines

NOTE—No orders too large for our capacity. None too small to receive careful attention.

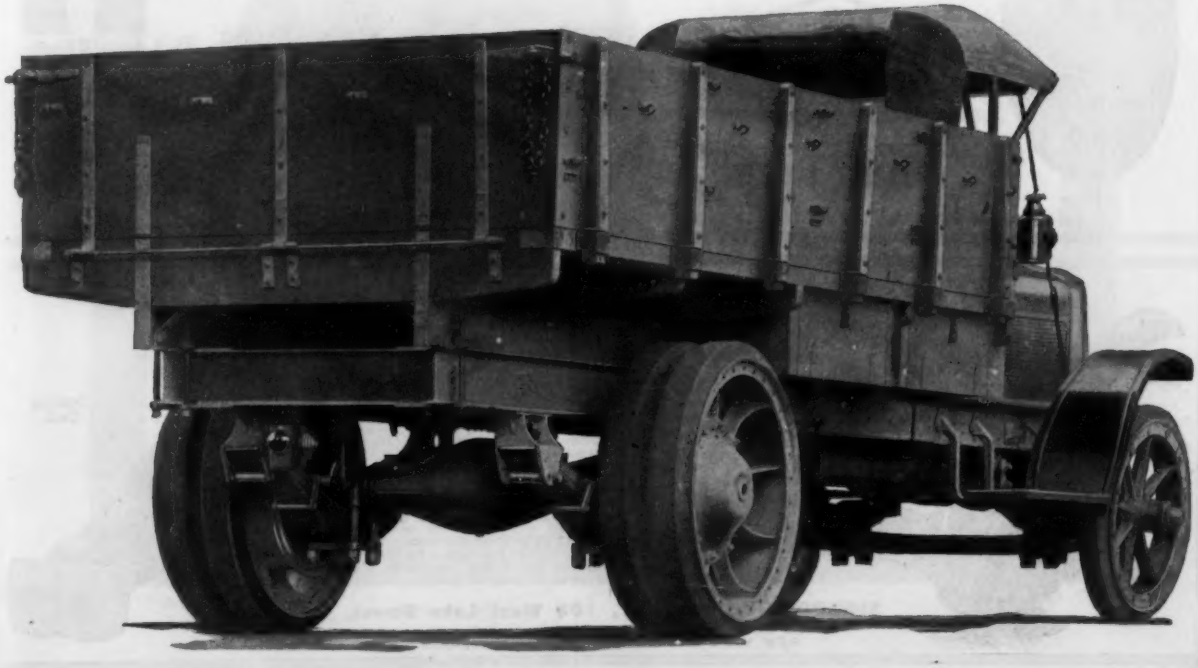
The WHITE *Heavy Duty Truck*

with DOUBLE REDUCTION Gear Drive

Having all the leverage and flexibility of a chain and sprocket and the frictionless driving contact of gears which *roll* in oil, dust proof

Light Unsprung Weight · More Road Clearance
Narrow Tread · High Leverage

THE WHITE COMPANY
Cleveland



HARD COMMON SENSE SAYS

Discriminate between—{Low first cost / Low Ultimate cost

FIG. 27

If you use

LANE CANVAS BOXES, TRUCKS AND BASKETS

You are on the right track

W. T. Lane & Bro., Mfrs., Poughkeepsie, N. Y.

Acme Supplies for the Shipping Room

ACME DOT EMBOSSED STRAPPING
In Coils of 300 and 3000 feet.

ACME

MFRS. OF STEEL BOX STRAPPING
LACQ. & GALV. FINISHED BALE TIES
AND BUCKLES OF VARIOUS DESIGN

WRITE AT ONCE FOR NEW CATALOG.

No. 4 Acme U Buckle

ACME GALV. TWISTED WIRE STRAPPING.

No. 9 Acme Bale Buckle.

Mfd. By
ACME STEEL GOODS CO.
Works: CHICAGO.
Patent Coil Holder Whse. and Offices at 10-14 Tift St., Atlanta, Ga., and Queen & Crescent Bldg., New Orleans, La.

These Are the Tools Supplied With the SIGNODE SYSTEM

Stretching Tool.

The Signode System consists of encircling bales in the press with Special Signode Strap, drawing the strap very tight and sealing by crimping the overlapping ends of the strap within a metal sleeve called a Signode. This System saves considerable time over any other method of applying strap to bales, and on account of the superior strength of Special Signode Strapping requires less weight of metal per bale than other types of strap. Some considerable saving in labor is also possible, making the capacity of a press greater per day in number of bales than by other methods.

One of the greatest advantages of the Signode System in connection with textile materials to be exported is the possibility, by stretching up the straps tightly and sealing them, of eliminating any rebound in the bale. With cargo space valued at $2.50 to $4.00 per cubic foot it is possible to save $3.00 to $15.00 per bale by using the Signode System over the use of any method of strapping the bales (either with metal strap or rope) which will permit of this rebound. Write for full information.

Sealing Tool.

SIGNODE SYSTEM, Inc., 108 West Lake Street, CHICAGO.

143 Liberty St. NEW YORK — 49 Federal St. BOSTON — 10 Tift St. ATLANTA — 1601 Chestnut St. PHILADELPHIA

WE make Cocheco Belts to give the greatest possible service.

Every inch of leather used in Cocheco Belting is pure oak tanned, cut from the choice center parts of big, heavy butts.

Before Cocheco Belting leaves the factory we make sure, by careful inspection, that every foot of it is **right.**

We have supplied Cocheco users with belts of uniform wearing and working qualities for **75 years.**

No belting sold closer to cost; none more economical to use. Let us show you.

I. B. Williams & Sons

Dover, New Hampshire

BOSTON, MASS., 157 Summer St.
NEW YORK, N. Y., 71-73 Murray St.
CHICAGO, ILL., 14-16 N. Franklin St.

Fourteen Months—Half-Hour Shifts—and the G.T.M.

They had never kept belt records in the Kentucky River Mills at Frankfort, Kentucky. They always bought expensive belts and took the price as proof of quality. They were troubled sometimes by the frequent need for belt repairs, by their belting bills and by low production—but they just accepted all these things as necessary evils. One July day in 1917, a G. T. M.—Goodyear Technical Man—called. It was our Mr. Jenkins.

He asked Mr. Sutherland, the superintendent, to show him the hardest drive in this particular mill. Mr. Sutherland wanted to know why. The G.T.M. explained the Goodyear plan of selling belts only after a careful analysis of the drives to be served—and not as if a given belt was like a patent medicine and a sure-cure for any and all ills that drives may entail.

The idea appealed and he was shown the spinning frame drive. It was a shift—every half-hour the belt was thrown from one driven pulley to its twin. There was one *quarter* turn and one *half* turn. He measured belt speed, centers, pulley diameters and pulley faces, asked about the power, and noted the nature of the load.

Then he prescribed a Goodyear Glide Belt—3½ inch 5 ply. Mr. Sutherland was interested. He asked the price. He found it was so moderate that he doubted the merit of the belt, but consented to try it. He didn't see where he could lose anything, and he might be able to get rid of constant interruptions and shut-downs.

The belt was applied August 16, 1917, and is still running. *Its edges are not even worn.* No stretch has had to be taken out. Production has never been interrupted a single minute. Fourteen months after being applied the belt seemed still as good as new.

These fourteen months of perfect service, in spite of shifts every half-hour, on that spinning frame drive, have converted them to the Goodyear plan of belt buying—and to Goodyear Belts. They have made the mill a Goodyear-belted- and G.T.M.-served mill—like thousands of others.

If you have a hard drive, and have always accepted high belting costs and belt-troubles as necessary evils, ask a G.T.M. to call. One from the nearest Goodyear branch will be glad to do so when next he is in your vicinity. His service is free—for the savings he effects for purchasers are so evident and material, that a gratifying volume from the plants served is sure to result within a few years.

THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

BELTING · PACKING HOSE · VALVES

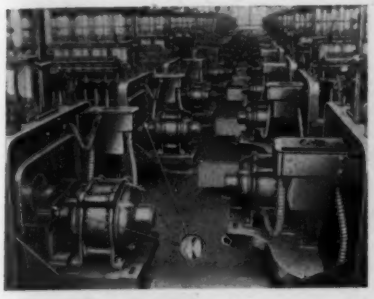
GOODYEAR

AKRON

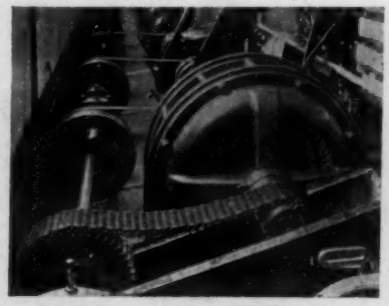
MORSE Steel

DRIVES Belting

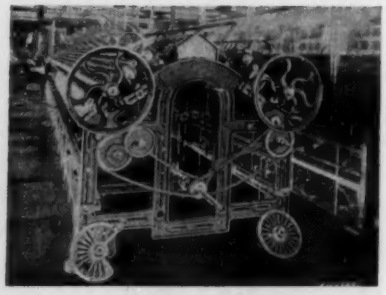
Largest Silent Chain Factory in the World.



Efird Mill, Albemarle, N. C.

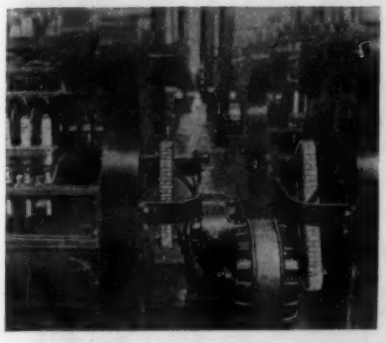


Western New York Silk Mill.

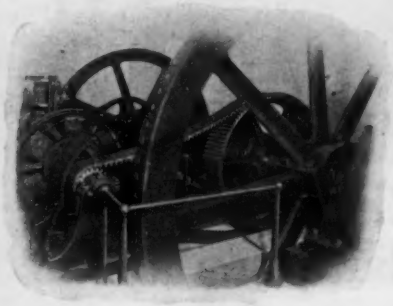


Saco-Lowell Frame.

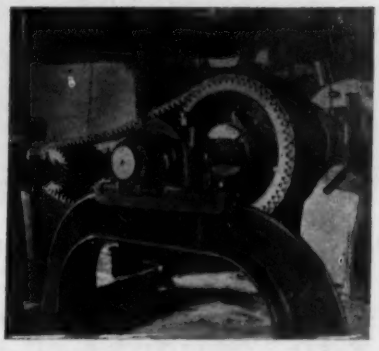
THE POSITIVE, NON-SLIPPING DRIVE FOR TEXTILE MILLS



5 H. P. Spinning Frame Drive.



200 H. P. Drive.

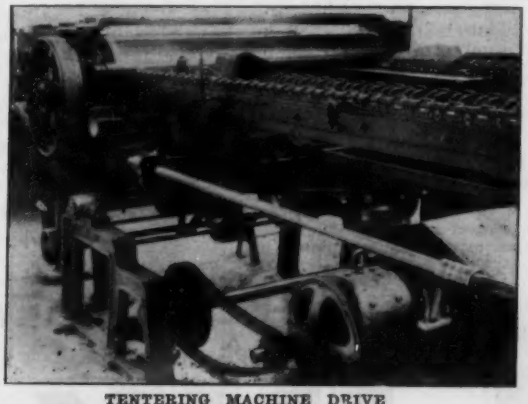


Lockhart Mills, Lockhart, S. C.

Lower Costs Uniform Product Increased Production 99% Efficiency

FAST KNITTING MACHINE
Julius Kayser & Co.

Oil Baths not Required



TENTERING MACHINE DRIVE
National Silk & Dyeing Co.

When you require a drive for any purpose, think of

MORSE CHAIN COMPANY, Largest Manufacturers of Silent Chains in the World ITHACA, N. Y.

MORSE ENGINEERING SERVICE Address Nearest Office. ASSISTANCE WITHOUT OBLIGATION

Boston, Mass.	141 Milk Street	Atlanta, Ga.	Earl F. Scott, M. E., 702 Candler Bldg.
Chicago, Ill.	Merchants Loan & Trust Bldg.	Canada	Jones & Glassco, Reg'd.
Cleveland, Ohio	421 Engineers Bldg.	Montreal, St. Nicholas Bldg. Toronto, Bank of Hamilton.	
Detroit, Mich.	1003 Woodward Ave.	Kansas City, Mo.	Morse Engineering Co., R. A. Long Bldg.
Greensboro, N. C.	305 Ashboro Street	Minneapolis, Minn.	Strong-Scott Mfg. Co., 413 Third St., S.
New York City	50 Church St., Hudson Terminal Bldg.	St. Louis, Mo.	Morse Engineering Co., Chemical Bldg.
Pittsburgh, Pa.	Westinghouse Bldg.	Licensees for Europe	The Westinghouse Brake Co., Ltd.
San Francisco, Cal.	Monadnock Bldg.		82 York Road, King's Cross, London, N.

Send for Bulletins. Write for 1919 Vest Pocket Diary & Memo. Book.

Link-Belt Silent Chain Drives Help Maintain Luxite Quality

HOSE OF LUXITE is a quality product. That quality is just as much manifested in the workmanship as in materials.

The power required by a long line of knitting machines is often of a very intermittent nature. But perfect knitting requires a continuous, steady "stream" of power, whether the strain on driving shaft be light or heavy. Slipping belts mean inferior knitting.

And so, in the home of Luxite Hosiery, the most efficient and reliable form of power transmission was employed—Link-Belt Silent Chain Drives.

They have often proven themselves 98.2% efficient under actual test. They are known to be "flexible as a belt, positive as a gear, more efficient than either", by leading hosiery manufacturers.

That is why they have been adopted as the standard form of power transmission in the homes of Luxite, Holeproof, Phoenix, Black Cat and many other leading brands of hosiery.

Our Textile Book No. 258 gives details. Send for it.

LINK-BELT COMPANY

PHILADELPHIA CHICAGO INDIANAPOLIS

Branches in Principal Cities

LINK-BELT (159)

SILENT CHAIN DRIVES

Stop Spoilage From Oil Stains

The almost continual increase in operating expenses makes it absolutely necessary to secure the fullest output of your mill and eliminate "seconds."

Spoilage from oil stains cuts down your production and your profit—but you can easily avoid this evil by the use of

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES PATENT OFFICE

It will not spatter, drip nor creep like oil. Even on machines where the goods in the process of manufacture are constantly in closest contact with the bearings, NON-FLUID OIL causes no damage saving you many times its cost in the goods—*it does not stain.*

NON-FLUID OIL stays with the bearings until it is entirely used up, keeping down power consumption and wear. The customary interval between oiling can usually be stretched from five to six times, reducing the labor of oiling as well as the cost of lubricants.

Leading mills throughout the country have adopted NON-FLUID OIL. Ask for names of some in your locality and send for free testing samples.

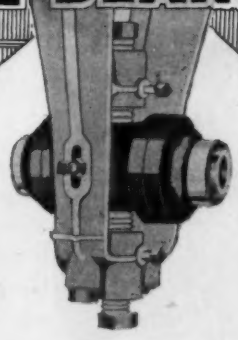
Caution: NON-FLUID OIL is made from the finest mineral oils by our special process that prevents dripping, creeping, etc. Accept no substitutes. The genuine NON-FLUID OIL has the sprocket wheel trade mark as above.

THE NEW YORK AND NEW JERSEY LUBRICANT CO.

165 Broadway **New York City**

Branches: Atlanta, Ga., Charlotte, N. C.
Lewis W. Thomason, District Manager.

CHAPMAN TYPE BALL BEARINGS



CHAPMAN Type Ball Bearings are primarily designed for power transmission purposes; they have been constructed to be fitted into any of the standard hanger frames in the market without tearing down the hanger, interchanging with self-oiling boxes of the same shaft sizes.

Chapman Type Ball Bearings will save 15% to 40% of your total power consumption, lower lubrication costs 95%, and are entirely dust and drip proof.

They are very substantial in construction and are designed with an ample factor of safety, insuring long life under conditions met in power transmission.

A fund of data has been compiled which we will be glad to place at the disposal of manufacturers, without charge, also our engineering services are at your disposal in either designing new transmission equipment, or the installation of ball bearings in existing plants.

The Complete Facts on These Economy Bearings Are in Catalog No. 3 M. Send for it.

TRANSMISSION BALL BEARING CO., Inc.

1050 Military Road, Buffalo, N. Y.

New York, Philadelphia, Cleveland, Chicago, Cambridge, Mass.
The Chapman Double Ball Bearing Co., 339-351 Sorauren Ave., Toronto, Ont.

FULL AUTOMATIC, SEMI-AUTOMATIC and HAND OPERATED

Gear Cutting Machines!

Especially Adapted for Use in

Cotton Mills.

Hundreds Now in Use.

Send for special circulars.

The D. E. Whiton Machine Company

New London, Conn.

AMERICAN
STEEL SPLIT
PULLEYS

Tests, under working conditions, have shown that American Steel Split Pulleys transmit more power with less waste than any other pulley on the market. Detailed printed reports of these tests on request.

"Getting Maximum Pulley Efficiency" a valuable 37-page book on pulleys, free on request.

The American Pulley Co.
Philadelphia, Pa.

BEACH AUTOMATIC GRIP PULLER

Get It Off Quick and Clean

The BEACH AUTOMATIC GRIP PULLER gets a job done quick and without danger of damage. This means better and quicker work.

The BEACH is the best tool made in the gear puller line. You should use one for removing gears, sprockets, pulleys, etc.

Capacity 1 to 8½.

Scientifically designed, well made, light in the strong, simple and reliable gear. Adjusts itself instantly to work—hole in any desired position.

TEN-DAY TRIAL OFFER

Get a BEACH AUTOMATIC GRIP GEAR PULLER today, on our 10 days' trial basis. If it doesn't prove a big money saver send it back and we'll refund your money.

We have a profitable dealer and jobber proposition.

We also make a small size Puller for the Hardinge Mill, as well as the Beach Hub Tool.

THE GREB COMPANY

171 STATE STREET BOSTON, MASS.

Tycos
TEMPERATURE INSTRUMENTS

Indicating Recording Controlling

Tycos Mercurial, Recording and Index Thermometers for all industrial and laboratory applications.

Electric Contact Thermometers, Temperature, Pressure and Time Regulators.

Mercury Column Vacuum Pressure and U Gauges.

Tycos Base Metal, Rare Metal and Fusion Pyrometers (Indicating and Recording) Fery Radiation Pyrometers.

Hygrometers, Hydrometers.

Mineral Oil Testing Instruments.

Aneroid and Mercurial Barometers, Recording Barometers.

Pocket Compasses, Surveying Compasses, Rain Gauges, Anemometers and Air Meters, Thermographs, Hand Levels, Aviation Barometers and Inclinometers.

Tycos Sphygmomanometers.

Tycos Fever Thermometers and Urinary Glassware.

Thermometers of all kinds for home and general use.

To be reliable is often considered as claim sufficient for Temperature Instruments; but to be permanently reliable is a virtue that should dispel the last increment of doubt in the mind of the purchaser.

Tycos Instruments are permanently reliable. They are the product of over fifty years experience in the manufacture of Temperature Instruments. They are the means of checking up to a nicety the exact changes in heat and cold—servants of efficiency and production.

Look at it from any angle of practical mechanics and you are bound to see the common sense in installing *Tycos* equipment. Every one of our instruments has been scrupulously tested and perfected. They are unquestionably the kind you are looking for.

Write for our literature while the matter is fresh in your mind.

Taylor Instrument Companies

Rochester, N. Y.

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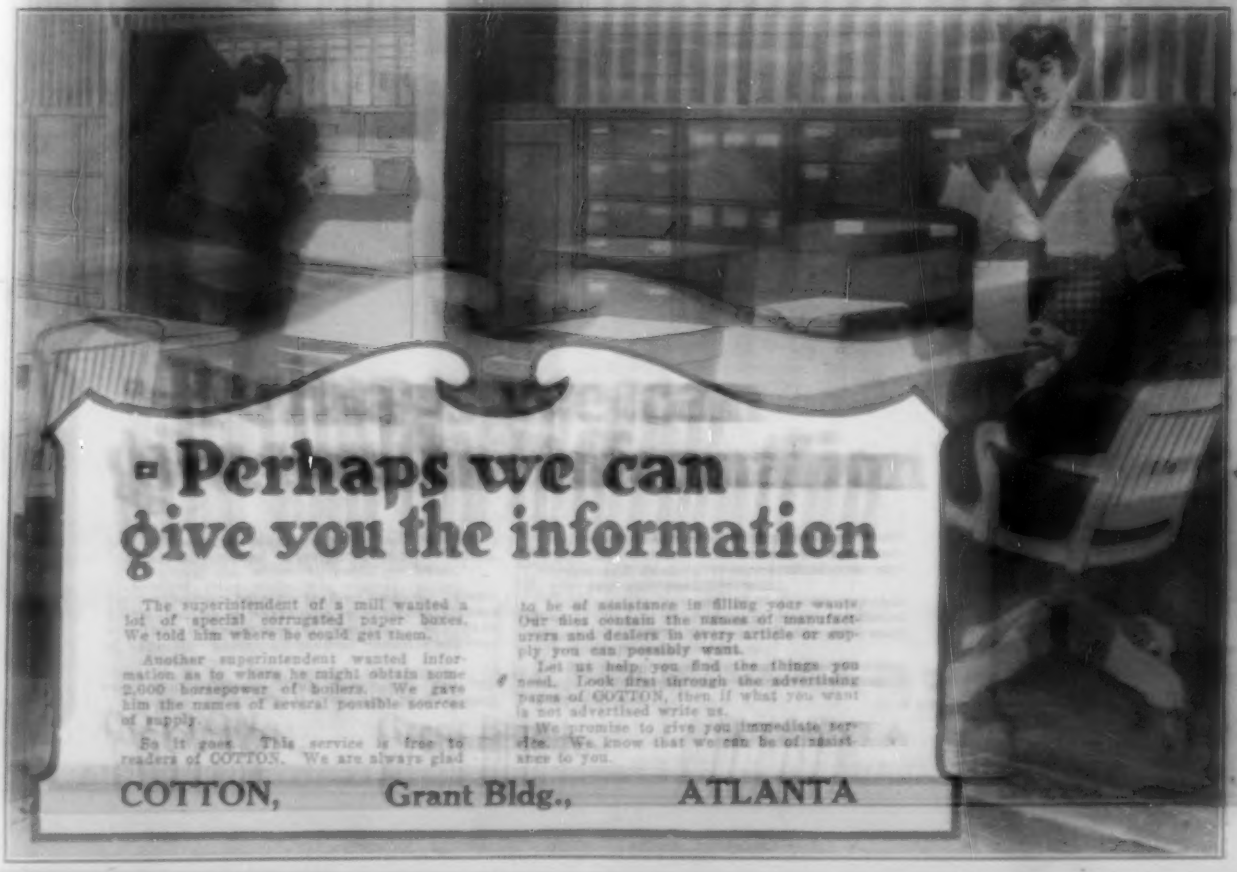


Perhaps we can give you the information

The superintendent of a mill wanted a lot of special corrugated paper boxes. We told him where he could get them.

Another superintendent wanted information as to where he might obtain some 2,000 horsepower of boilers. We gave him the names of several possible sources of supply.

So it goes. This service is free to readers of COTTON. We are always glad to be of assistance in filling your wants. Our files contain the names of manufacturers and dealers in every article or supply you can possibly want.

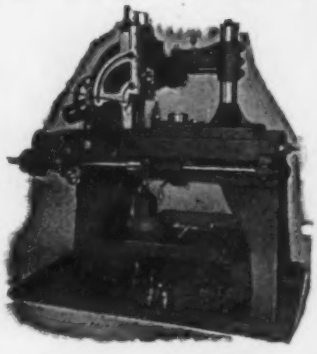
Let us help you find the things you need. Look first through the advertising pages of COTTON, then if what you want is not advertised write us.

We promise to give you immediate service. We know that we can be of assistance to you.

COTTON, Grant Bldg., ATLANTA

FULL AUTOMATIC, SEMI-AUTOMATIC and HAND OPERATED

Gear Cutting Machines!



Especially Adapted for Use in

Cotton Mills.

Hundreds Now in Use.

Send for special circulars.

The D. E. Whiton Machine Company

New London, Conn.

AMERICAN STEEL SPLIT PULLEYS

Tests, under working conditions, have shown that American Steel Split Pulleys transmit more power with less waste than any other pulley on the market. Detailed printed reports of these tests on request.

"Getting Maximum Pulley Efficiency" a valuable 37-page book on pulleys, free on request.

The American Pulley Co.
Philadelphia, Pa.

BEACH AUTOMATIC GRIP PULLER

Capacity 1 to 8".

Get It Off Quick and Clean

The BEACH AUTOMATIC GRIP PULLER gets a job done quick and without danger of damage. **This means better and quicker work.**

The BEACH is the best tool made in the gear puller line. You should own one for removing commutators, transmissions, pulleys, etc.

Scientifically designed, well made, quick acting, strong, simple and trouble-proof. Adjusts itself instantly to work—locks in any desired position.

TEN-DAY TRIAL OFFER

Get a BEACH AUTOMATIC GRIP GEAR PULLER today, on our **10 days' trial basis.** If it doesn't prove a big money saver send it back and we'll refund your money.

We have a profitable dealer and jobber proposition.

We also make a small size Puller for the **Mechanic's Kit** as well as the Beach Rim Tool.

THE GREB COMPANY

171 STATE STREET BOSTON, MASS.

Tycos

TEMPERATURE INSTRUMENTS

Indicating Recording Controlling

Tycos Mercurial, Recording and Index Thermometers for all industrial and laboratory applications.

Electric Contact Thermometers. Temperature, Pressure and Time Regulators.

Mercury Column Vacuum, Pressure and U Gauges.

Tycos Base Metal, Rare Metal and Radiation Pyrometers (Indicating and Recording) Fery Radiation Pyrometers.

Hygrometers, Hydrometers.

Mineral Oil Testing Instruments. Aneroid and Mercurial Barometers. Recording Barometers.
Pocket Compasses.
Surveying Compasses, Rain Gauges.
Anemometers and Air Meters.
Thermographs, Hand Levels.
Aviation Barometers and Inclinometers.

Tycos Sphygmomanometers.

Tycos Fever Thermometers and Urinary Glassware.

Thermometers of all kinds for home and general use.

To be reliable is often considered as claim sufficient for Temperature Instruments; but to be permanently reliable is a virtue that should dispel the last increment of doubt in the mind of the purchaser.

Tycos Instruments are permanently reliable. They are the product of over fifty years experience in the manufacture of Temperature Instruments. They are the means of checking up to a nicety the exact changes in heat and cold—servants of efficiency and production.

Look at it from any angle of practical mechanics and you are bound to see the common sense in installing *Tycos* equipment. Every one of our instruments has been scrupulously tested and perfected. They are unquestionably the kind you are looking for. Write for our literature while the matter is fresh in your mind.

Taylor Instrument Companies

Rochester, N. Y.

Perhaps we can give you the information

The superintendent of a mill wanted a lot of special corrugated paper boxes. We told him where he could get them.

Another superintendent wanted information as to where he might obtain some 2,000 horsepower of boilers. We gave him the names of several possible sources of supply.

So it goes. This service is free to readers of COTTON. We are always glad to be of assistance in filling your wants. Our files contain the names of manufacturers and dealers in every article or supply you can possibly want.

Let us help you find the things you need. Look first through the advertising pages of COTTON, then if what you want is not advertised write us.

We promise to give you immediate service. We know that we can be of assistance to you.

COTTON, Grant Bldg., ATLANTA

Make Your Sizing 100% Efficient

Investigation and tests have proved that the weight and breaking strength of the sized warp *increases* or *decreases* according to the temperature maintained in the size box.

Too HIGH a temperature thins the size to such an extent that there is an *excessive* amount of breakage on the looms.

Too LOW a temperature produces harsh and rough warps, resulting in an excessive amount of chafing in the looms.

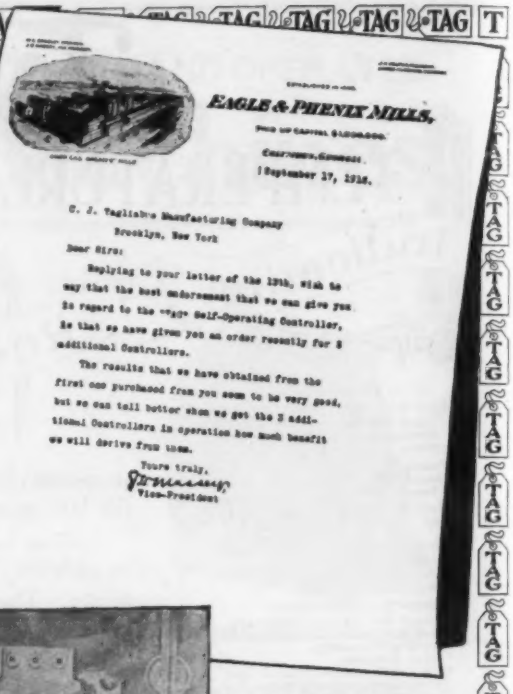
THE "TAG" SIZE BOX Automatic Temperature Controller **reduces** the number of broken ends, also the chafing, to the minimum, because it **automatically** maintains a UNIFORM Temperature in the size box, thus producing perfectly sized and uniform warps.

Contrast this practically "100% efficiency" with old-fashioned HAND control of the steam inlet valve when, even with the most careful attention, the temperature variations usually amount to 30°.

The "TAG" Controller is simple to install and operate, requires no auxiliary motive power, and generally pays for itself in less than a season due to the many economies effected.

Learn more about this efficient Controller by writing for Bulletin C-387

C. J. TAGLIABUE MFG. CO.
TEMPERATURE ENGINEERS
18-88 Thirty-Third St. Brooklyn, N.Y.


EAGLE & PHENIX MILLS,

September 17, 1918.

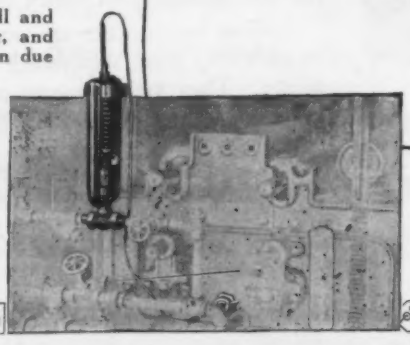
C. J. Tagliabue Manufacturing Company
Brooklyn, New York

Dear Sirs:

Replying to your letter of the 12th, wish to say that the best endorsement that we can give you in regard to the "TAG" Self-Operating Controller, is that we have given you an order recently for 3 additional Controllers.

The results that we have obtained from the first one purchased from you seem to be very good, but we can tell better when we get the 3 additional Controllers in operation how much benefit we will derive from them.

Yours truly,
Vice-President



"TAG" Size Box Automatic Temperature Controller

MACHINE SHOP EQUIPMENT

Let Us Quote You

MILLING MACHINES
GEAR CUTTERS
LATHES
PLANERS
SHAPERS
DRILL PRESSES
ELECTRIC MOTORS
ELECTRIC DRILLS
and GRINDERS
WELDING OUTFITS

SEEGER-WALRAVEN COMPANY

Machine Tools—Mill Supplies—Foundry Equipment
36-38 WEST ALABAMA STREET, ATLANTA, GEORGIA

Pay Your Fuel Bills With Condensed Steam

Condensation will pay a real profit—instead of being a continual worry and expense—if taken out of steam lines and returned to the boilers as pure **HOT** feed water—ready to burst into steam.

The Morehead Back-to-Boiler System not only saves 8 to 20 per cent of fuel, but also increases the production from steam-heated equipment 5 to 50 per cent. Let us send you facts and figures and our catalog.

Morehead Manufacturing Co. Cotton Mill Dept. **Detroit, Mich.**

and satisfy yourself of the many advantageous features embodied in

LUNKENHEIMER "FERRENEWO" VALVES

Note the **seat ring** and **disc**, both of which are made of Lunkenheimer "Valve-nickel," a material having exceptional wearing qualities; the regrindable seating surfaces; the renewability of all parts, including the **seat ring** and **disc**; the full areas through the body; union bonnet; special composition stem, which insures long life to the stem threads; deep stuffing box, etc. These features combined with Lunkenheimer "quality" materials and workmanship make the "FERRENEWO" **the** valve of exceptional merit.

Globe, Angle and Cross, and Horizontal and Angle Check Patterns, for working steam pressures up to 150 pounds.

Your local dealer can furnish them; if not, write us. Write for descriptive Booklet No. 576-AK.

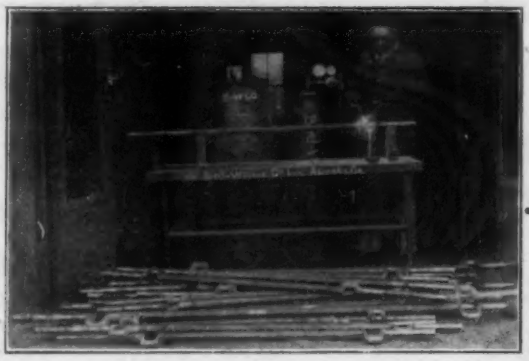
THE LUNKENHEIMER CO.
"QUALITY"

Largest Manufacturers of High Grade Engineering Specialties in the World

CINCINNATI

New York Chicago Boston London

2-11-10



These 43 Loom Crank Shafts

Make 237 that we have welded for one mill during the past year.

Experience shows that a properly welded crank shaft will outlive on an average two new crank shafts.

We charge the mill $1.45 each for welding these crank shafts,—and make a good profit. The average cost of a new crank shaft is $4.00.

The saving to the mill on each crank shaft is 62.55, making a total of $604.35 actually saved on this item in one year.

Why not prepare NOW for those inevitable breaks that are bound to occur in your mill. Why not affect such savings as this in your mill by installing a

B. W. Welding and Cutting Machine

We not only supply the machine, oxygen and supplies, but we send experts to your plant to teach your mechanic how to use it.

B-W SERVICE

means that if you have a breakdown too large for your own mechanic, our experts are always ready to come to you.

Write today for catalog and price list.

BIRD-WILCOX COMPANY, Inc

Oxygen, Oxy-Acetylene Welding and Cutting Machines and Supplies.

Atlanta, Ga. Savannah, Ga. Chattanooga, Tenn.
Charlotte, N. C. Gretna, La.

TOWERS and TANKS That are Built Right

Boilers, Structural Steel Work

Sheet Steel and Plate Work

Boiler Tubes Castings, Etc.

Tell us what you want and let us quote prices.

The Walsh & Weidner Boiler Co.

Chattanooga, Tenn.

SPRACO COOLING SYSTEM

WITH a proven record of 10% to 20% in the fuel bill alone, the Spraco System easily outdistances all other water-cooling methods.

But there are other features of surpassing importance to its credit which places it beyond and above all known competition.

No matter what the climatic conditions may be, or how scarce the supply of water, the Spraco System provides an abundance of continuous cooling water to the condenser.

By means of the Spraco "Center Jet" Nozzle, the hot water from the condenser is sprayed before entering the cooling pond. In this manner every particle of water is exposed to the atmosphere and cooled by evaporation, radiation and convection.

More than 400 successful Spraco installations have provided the experience whereby power plant efficiency has increased from 15% to 25%.

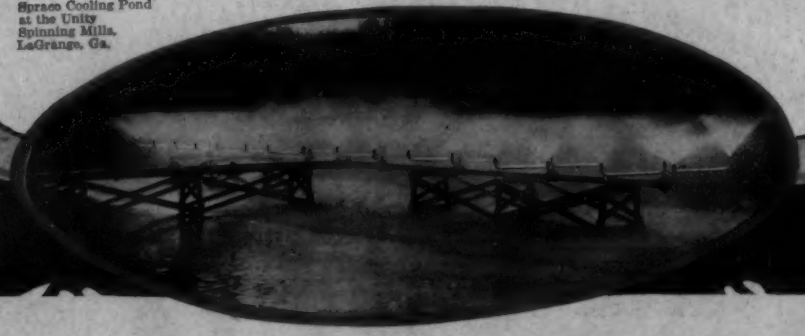
Shall we send our booklet "Cooling Ponds for Condensing Engines?"

The Spraco Pneumatic Painting Equipment

Does the work of four average painters. It covers the walls with a smooth, even coating, free from streaks and brush marks. Mill Managers know that the largest expense items of painting is the labor, which is reduced at least a fourth by the aid of this modern device.

SPRAY ENGINEERING COMPANY

93 Federal St., Boston, Mass.



Spraco Cooling Pond at the Unity Spinning Mills, LaGrange, Ga.

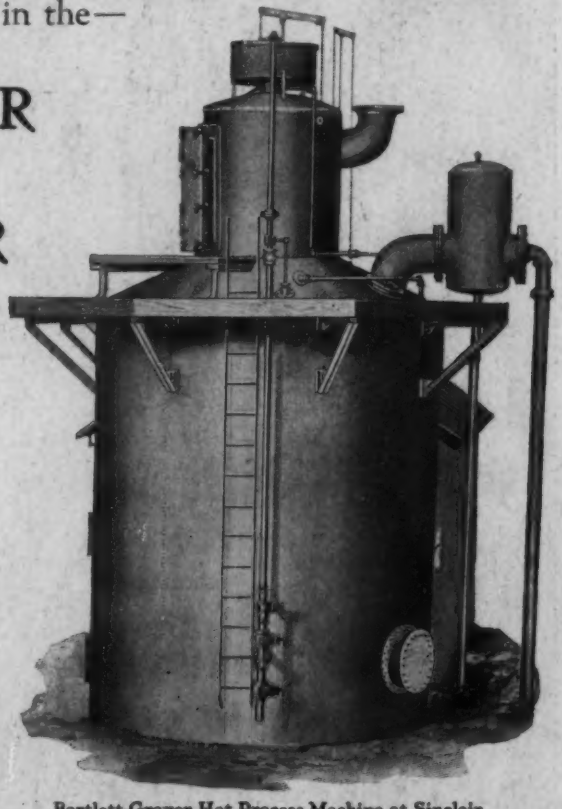
We manufacture all kinds of Water Softeners and we recommend the Hot Process Machine for treating boiler feed-water. *Wm. Graver Tank Works*

THOUSANDS of power plant superintendents are facing a new problem. Boiler feed-water treatment has been decided upon. The question is now, "What is the most effective machine to buy?" A little study — an investigation of the results attained by different types of plants will demonstrate the enormous advantages of treating after heating, as it is accomplished in the—

BARTLETT-GRAVER
Hot Process
WATER SOFTENER

Here are its advantages!

1. **Reduces incrusting solids to 1½ grains or less.**
2. **Reduces alkalinity to harmless minimum.**
3. **Insures immediate reaction, thus avoiding possibility of secondary reactions and consequent troubles caused by sludge in pipe lines, boiler feed pumps and heaters.**
4. **Small settling tank required, enables entire plant to be located in the boiler room.**
5. **First cost of medium and large size plants is less than that of cold process machines.**
6. **Reheats water after treatment to the maximum temperature. (Don't forget that each eleven degrees saves 1% of fuel.)**



Bartlett-Graver Hot Process Machine at Sinclair Refining Co., Cushing, Okla.

Don't Confuse this Water Softener with So-Called "Heater Purifiers"

Heating water to 200 degrees does remove a portion of the calcium and magnesium carbonates known as "temporary hardness." It does not affect the more harmful sulphates and other dangerous impurities which form hard scale. The Bartlett-Graver Hot Process Machine is a complete Softening Plant utilizing heat to prepare the water for immediate precipitation of all impurities by properly measured chemical reagents.

Apply the Cost of Your Feed-Water Heater on a Treating Plant

In equipping a new plant with the Graver Hot Process Machine you save the cost of the separate heater, which is a considerable percentage of the cost of the Softener. Plants already equipped with heaters find no difficulty in selling the equipment at a good price, thereby reducing the cost of the Softener by a good margin.

Send sample of your water supply and let us tell you exactly what we can accomplish for you

WM. GRAVER TANK WORKS

4812 Todd Avenue, East Chicago, Indiana

Steel Tanks and Steel Plate Work
Water Softeners and Filters

THE GAYLORD W. FEAGA COMPANY
CONSTRUCTING ENGINEERS
CLEVELAND

A Complete Organization

That type of organization known as construction engineers is a comparatively recent institution. Its success is definite. The intimate co-ordination of engineering and construction effort means better building at less cost. Such an organization is always able to very effectively co-operate with the owner's architect or engineer.

The modern plant owner recognizes the definite increased safety factor offered by a complete organization.

G. W. Feaga

J. S. SCHOFIELD'S SONS CO.,
Macon, Georgia

MANUFACTURERS OF

High Pressure Return Tubular Boilers, High Grade Stationary Steam Engines, Tanks, Stacks, Stand Pipes.

Heavy Castings and Wrought Iron Works.

—before building or rebuilding your plant, get this book

Nobody knows better than you the importance of carefully planning the project you have in mind—the need for analyzing the situation correctly, and building a plant in which every possibility has been foreseen and met.

The experience of Lockwood, Greene & Co. as engineers dates back to 1832. This experience has built a broad knowledge, not only of technical, but also commercial, financial and business conditions. To plan the undertaking, design the plant, lay out the machinery and equipment and superintend the construction, are steps in the service rendered by Lockwood, Greene & Co.

The book, "Building With Foresight," explains this service and illustrates it by examples. The head of every industrial house will find this book of value. A request for it on your business letterhead will be honored at once.

LOCKWOOD, GREENE & CO.
ENGINEERS

BOSTON, 60 FEDERAL STREET - CHICAGO, 38 S. DEARBORN STREET
ATLANTA, HEALEY BUILDING - - - NEW YORK, 101 PARK AVENUE
LOCKWOOD, GREENE & CO. OF CANADA, LTD., MONTREAL, P. Q.

"Sanisep" Sewerage Systems

Indorsed by All Health Authorities

No. 11. "SANISEP" System for use with running water.

Patented.

No. 2. "SANISEP" System for two families. No running water required.

"SANISEP" Systems, for use with or without running water, do away with costly and disagreeable scavanger work, and expensive chemicals.

They utilize the L. R. S. Principle, which was devised by the United States Public Health Service, and is recommended by practically all State Boards of Health.

The Septic Closet Systems, for use without running water or plumbing, are made in single, double, and quadruple units to take care of one to four houses, and provide an economical and efficient method of equipping an industrial village.

Advise us of your needs and let us show you how cheaply and efficiently your sewage disposal problems can be solved, and how the disease and mortality of your community can be reduced.

Write for catalogue and list of those using "SANISEP" Systems; both will prove of interest to you.

Cement Products Company

TRUST BUILDING, WILMINGTON, N. C.

Oliver Bldg., Pittsburgh, Pa.

Every Link An Eye

A MILLION EYES

Watch every foot of property and stop every opening.

Every link of Cyclone Chain Link Fabric is an EYE doing watchman's duty—ever vigilant, dependable, economical, permanent.

Every entrance and every exit is absolutely controlled. Persons not wanted inside are barred outside by

Cyclone

Property Protection Fencing

A positive barrier against intrusion by all undesirables.

"THEY SHALL NOT PASS" is equally true when applied to CYCLONE Property Protection Fence, as when it became the famous Verdun slogan of Victory.

Chain Link Woven Steel Fabric, heavily galvanized; heavy tubular steel posts set in concrete; pressed steel post tops carry three or five barb wires firmly locked.

Our engineers will advise with you and suggest a system of protection to meet your particular requirements.

Illustrated catalog showing many Cyclone Fence installations sent free on request.

Phone, wire or write main offices, Waukegan, Ill., or branch office nearest you.

CYCLONE FENCE COMPANY

FACTORIES:

Waukegan, Ill. Cleveland, Ohio.

BRANCHES: Chicago, Philadelphia, New York City, Washington, Oakland, Calif., Portland Ore., San Francisco.

PAGE

More Than a Generation of Valuable Experience Is At Your Service

A GENERATION and more ago the pioneer days of farming in the Middle-west were passing; and with the improvement of conditions one of the earliest needs was for adequate means of fencing. The primitive split-rail or stone fence was a land-waster, a gathering place for vermin and weeds, and proof neither against the inroads of wild creatures nor the egress of stock.

J. Wallace Page was a pioneer experimenter in the use of wire for fencing. His first effort along this line still stands in Hudson, Michigan, after over half a century of service. Crude and unfinished as this is, it was yet the beginning of one of the steps which made possible the complete reclamation of the land. And on that small foundation has been built an institution world-wide in its scope, whose history is synonymous with the development of the use of wire for fencing and allied purposes.

Today the original Page Company, expanded into the Page Steel and Wire Company, is one of the dominant factors in the wire and wire-fabric field. In addition to the extensive plants at Adrian, Michigan, it owns and operates one of the best-equipped wire mills in the world at Monessen, Pennsylvania.

Page products are everywhere standards of quality. Page Wire-link fabric is today recognized as the ideal form of protective industrial fencing; and it is extensively used for interior factory partitions, machinery and window guards, belting and a score of other purposes. Page supremacy is equally evident in the farm fence field and in wrought iron and other ornamental fencing and grille work. By an arrangement with the American Rolling Mill Company of Middletown, Ohio, Page possesses the sole right to the use of the famous Armco iron in wire and wire products.

Page engineers have developed many uses for wire fabric which will save you money and make for greater efficiency. Special types of wire, too, have been devised for different needs. All of this experience is at your service for the asking.

Simply address our Adrian plant, and let us help you work out your problems in the fence or wire field.

PAGE STEEL & WIRE COMPANY

Formerly **Page Woven Wire Fence Company**

Established 1883

ADRIAN, MICHIGAN *Factories* **MONESSEN, PENNA.**

Branches: **New York, 30 Church Street; Pittsburgh, 644 Union Arcade; Detroit, 660 W. Fort St.; Chicago, 175 W. Jackson Boulevard.**

Brighten-Up Mill White will keep women workers

GOOD wages attract women workers but it requires good surroundings to keep them on the job.

Thousands of women have gone into factories; worked but a few days and then quit because they couldn't stand the drab dreariness of factory walls.

Factories dependent on women workers for production find Sherwin-Williams' Brighten-Up Mill White a vital help. On factory walls Brighten-Up Mill White reflects and diffuses sunlight evenly and without glare. It rests the eyes, makes concentration easier.

Brighten-Up Mill White on factory walls gives the appearance of newness and cleanliness; it gives women workers a semblance of home; it inspires loyalty; it keeps them on the job every day.

Brighten-Up Mill White is invariably uniform in quality and whiteness, it is made in both flat and gloss and can be had at any Sherwin-Williams Branch Depot or Agency in barrels, kegs, fives or gallons.

Brighten-Up Mill White is but one of the twenty Sherwin-Williams Industrial Upkeep Products, the entire family is listed in the column to the right. Each product for its purpose is best; together they care for every industrial upkeep need.

SHERWIN-WILLIAMS INDUSTRIAL UPKEEP PRODUCTS BRIGHTEN-UP

1. S-W Mill White Enamel.
2. S-W Standard Cottage Paints.
3. Dado Enamels.
4. Machinery Enamels.
5. Aluminum Paint.
6. Sprinkler Enamel.
7. Conduit Paint.
8. Salamander Smokestack Paint.
9. Factory Coating.
10. Pipe Enamels.
11. Metal Protective Paints.
    A. Metalastic
    B. Galvanized Iron Primer
    C. Reinforced Red Lead.
12. Fence and Rough Building Paints.
13. Concrete and Cement Paint.
14. Concrete Floor Paint.
15. Sash and Door Paint.
16. Old Dutch Process White Lead in Oil.
17. S-W Linseed Oil.
18. Utility Varnishes.
19. Wood Preservatives
20. Composition Roof and Metal Paint.
    S. W. Ebonal.

Each for its purpose is best.

The Sherwin-Williams Co.,
806 Canal Road, Cleveland, Ohio
Branch Offices and Warehouses in All Important Cities.

SHERWIN-WILLIAMS PRODUCTS
PAINTS AND VARNISHES

DYESTUFFS, COLORS, PIGMENTS, CHEMICALS, INSECTICIDES, DISINFECTANTS, WOOD PRESERVATIVES

Better and Cheaper than Sawtooth

Sawtooth roofs are good for narrow buildings, bad for wide ones.

They do not ventilate the center: the wider the building the larger the "dead" area.

They give a one-direction light, with unpleasant contrasts for anyone facing north.

The modern lighting and ventilating roof is the

Pond Truss

PATENTED

THE ROOF THAT VENTILATES

It utilizes the natural air movements in a wide building. It gives an all-directions light, without shadows or glare. It does both at less than sawtooth cost.

A notable Pond Truss building is here shown. Between the outlet lines of Pond Continuous Sash are other lines admitting both light and air while excluding rain. All the roof sash are operated by electric motors in lines hundreds of feet long.

The Pond Truss represents the best possible use of top-hung weather-proof Pond Continuous Sash. It permits one-story factory buildings to be made of any desired width and length, without the drawbacks of ordinary roofs. It is patented, and its use is licensed where Lupton Products are used in the same building.

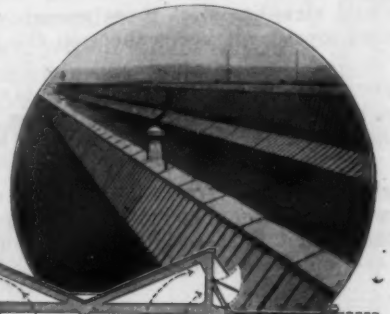
Booklet, "Air, Light and Efficiency," tells more about Lupton Service and Products.

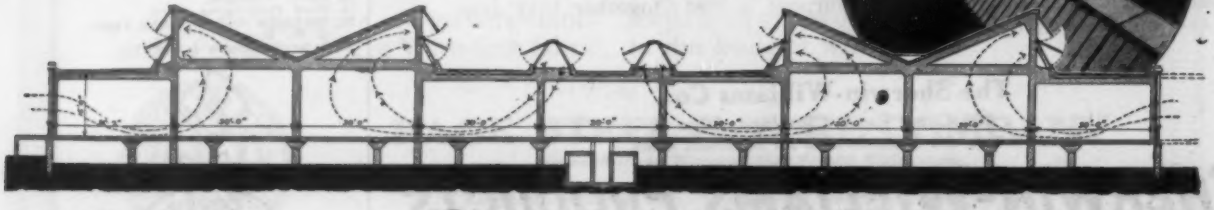
All Government Restrictions on use of steel sash have been lifted.

DAVID LUPTON'S SONS COMPANY

Amber Street and Allegheny Avenue, Philadelphia, Pa.

Illustrations show main manufacturing building of Dayton-Wright Airplane Co. Messrs. Schenck & Williams, Architects. Size, 270 x 1000 feet. Will eventually be 870 feet wide. Roof has two Pond Trusses, with Pond A-frames between. Pond Continuous Sash used in all roof openings.





Pond Continuous Sash for Pond Truss, sawtooths, monitors and side walls

Pond Operating Device for long lines of sash

Lupton Rolled Steel Skylight

Lupton

INVESTMENT VALUE

Lupton Steel Sash

Pivoted Factory Type
Counterbalanced Type
Counterweighted Type

Lupton Steel Partition and Doors

Federal Electric Siren

The Super Signal for Textile Mill Use

A COMMANDING note that everyone hears above the din of looms and spindles—and instinctively obeys. That is what makes the Federal Electric Siren ideal for textile mill use.

As an outdoor time signal it is heard for miles around—a dependable call for every day, the Type B Siren is supreme.

For indoor use as fire alarm or call signal, the smaller Type A Siren fills a distinct need.

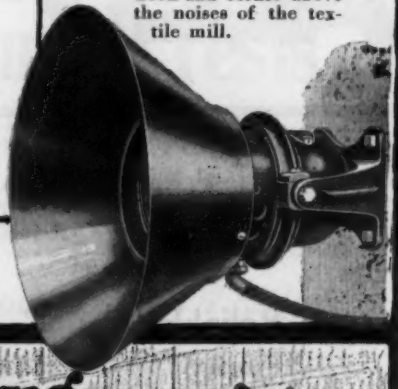
Always ready—operated from the office, engine room or any number of distant points. Current cost averages $2.00 per year. No other maintenance expense.

Send Coupon for Full Particulars

Federal Sign System (Electric)
Lake and Desplains Sts.
CHICAGO, ILL.

Type B Double Head
—for outdoor use as a starting and quitting signal or for fire and emergency calls. Penetration radius 1½ miles.

Tpye "A" Siren for interior use as a fire alarm, call systems and other uses requiring a signal to be heard in every nook and corner above the noises of the textile mill.



That Weird Penetrating Screech that commands instant Action

Please send full particulars about Federal Electric Sirens for _____ use.

Name _____

Company _____

Address _____

Cotton

Textile Drives

ALLIS-CHALMERS
Textile Motors

are built in various types, designed to meet the characteristics of the driven machines.

Our experience covering a quarter of a century in the design, building and commerical application of motors of all kinds, is at your service.

ALLIS-CHALMERS

Milwaukee. Wis. U.S.A.

If you use a Medium or Low Priced Lamp We Advise Substitution of

Reliable "Eagle" Renewed Tungsten Lamps

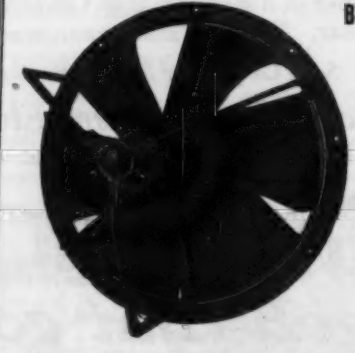
10 to 40 Watts
105 to 125 Volts
F. O. B. Providence

20c each.

Send Orders Promptly

BOSTON-ECONOMY LAMP DIVISION

NATION LAMP WORKS OF GENERAL ELECTRIC CO.
43 Hospital St., Providence, R. I.



Blackman Ventilators

For thirty-two years have been acknowledged by engineers and architects everywhere, as the best obtainable.

Installed in mills, manufacturing plants, office buildings, etc., they insure the proper circulation of good, pure air—a real necessity.

Our catalog explains fully. Send for it.

Howard & Morse
45 Fulton St.,
NEW YORK

J. LEON HOFFMAN

Landscape Architect and Engineer

Industrial Villages a Specialty

References from some of the Largest Cotton Mills

103 Peachtree Street **Atlanta, Ga**

Union Renewable Fuses and Links

They Satisfy the Maximum Tests

The safety of the "Union" Fuse is directly traceable to the "Union" Link. It is an extraordinary Link. It is so delicately proportioned and closely calebrated as to satisfy the maximum test that it will be called upon to meet on short circuit, no matter how severe.

Almost any fuse will do for the average light overload operation, but it takes a real fuse with an extraordinary Link built on scientific principles to stand up heroically under the explosion of a heavy overload.

The "Union" Renewal Link operates without violence or viciousness. The explosive force is reduced to safe limits—protecting the circuit under the most trying conditions.

The "Union" Link is a distinct advance in the art of Fuse making and it has made the *"Union" Renewable Fuse* the acknowledged leader in its class.

Every part of this Fuse is made from the highest grade material by a selected class of fuse makers. *Nothing* is left to chance. *Everything* combines for Quality, Efficiency and Low Cost. You can't go wrong in specifying the "Union" Renewable Fuse for your circuits.

Sold by dealers in electrical supplies everywhere

Chicago Fuse Mfg Co.

UNION

Renewable and Non-Renewable Fuses

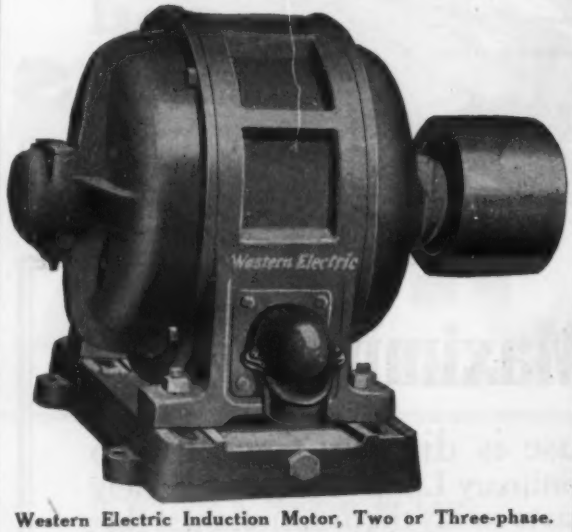
Chicago New York

UNION

Get Ready for the Coming Rush of After-War Orders

Install

Western Electric MOTORS



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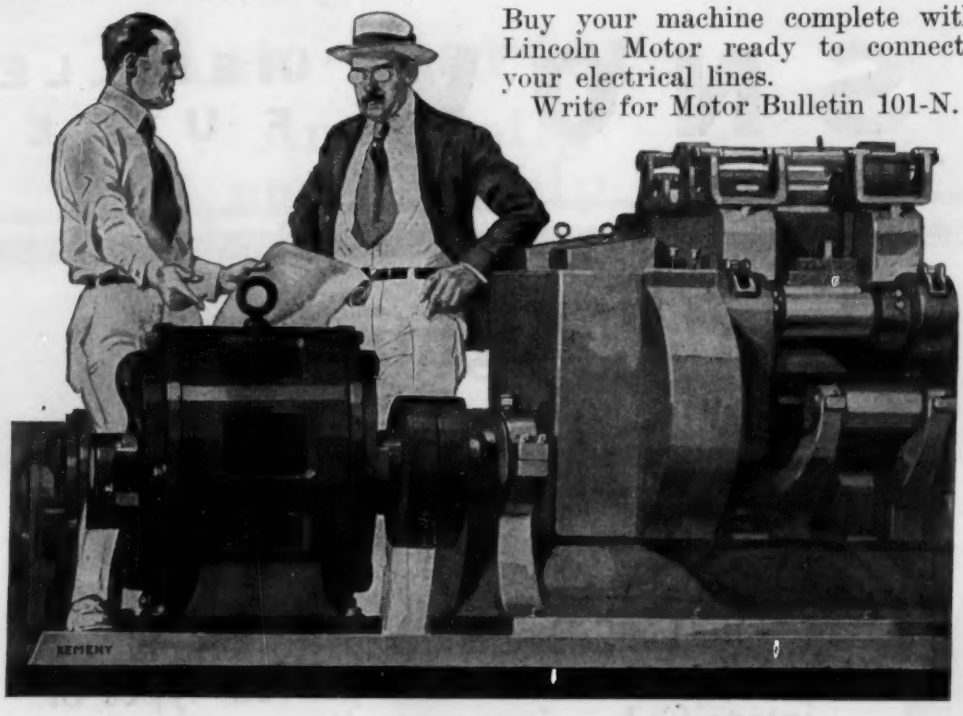

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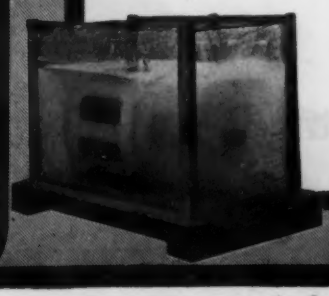

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Power often wasted is saved by the high efficiency of the motors as well as the elimination of shafting and belting. With this drive it is easy to measure quickly and accurately the power consumed by any machine without even shutting it down and so detect and stop waste.

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COTTON

Published Monthly by

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L. L. ARNOLD, Editor.

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Orders for any change in advertising must reach Atlanta previous to the tenth of the month preceding month of issue, otherwise publishers cannot be responsible for changes.

When changing address, notify us, not the postmaster. Always give the old address as well as the new one.

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Volume 83. Number 3.

THE MAIL.

The mail these days is intensely interesting. It brings us, not only the remembrance cards of our friends wishing us the good things of life, but it presents indisputable evidence of the prestige that COTTON enjoys.

A big exporter writes to ask us the names of companies able to bid on a 20,000 spindle mill to be erected in China.

An advertiser sends us a copy of a speech in which he states that the business press, and he uses a larger space in COTTON than in any other textile magazine, will continue to be the basis of his publicity work.

Several mills are facing an unusual condition and they write COTTON for advice in manufacturing operations.

So it goes. COTTON is the dominant cotton textile magazine. The service COTTON offers advertisers is not duplicated. Can we serve you?

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We have had several short cotton crops. Millions of bales have gone up in smoke on the battle fields of Europe. Civilian wants have been held in abeyance since the war started. Stocks of manufactured goods have been depleted while the mills were busy on war products.

Suddenly the armistice is signed. War needs are wiped out. Civilians can spend their money as they wish. The demand is gathering headway. It will be overwhelming.

Are the mills going to sit by and not do their utmost to meet this demand? Are they going to let the people in the United States continue to want if there is any possible way to gratify them?

Are the mills going to let Europe cry for clothes and make no effort to supply them?

Are the mills going to let the whole world appeal for textiles without making a strenuous effort to ship them the goods asked for?

You can answer these questions.

COTTON'S interest is in whether or not you are going to get your share of the business available from the activity due to this demand. COTTON offers cooperation that helps.

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COTTON offers you a sales service at home. You know the home folks, you must get acquainted with the others. They may prove just as agreeable, but don't neglect old friends while making the new ones.

THE JANUARY NUMBER.

The big January Annual Review Number of COTTON, this number, is the largest January number that has ever been issued. We point to it with pride as it is an indication of the constant growth and development of the magazine devoted to the enormous cotton textile industry.

The high quality of editorial material insures the attention and interest of the executives and officials interested in solving production troubles.

The confidence imposed by advertisers in trusting us to carry their sales story to these men is a recommendation we are proud of.

The fact that old advertisers come back for more and that new ones are constantly joining the family is assurance that COTTON is providing a service worthy of patronage.

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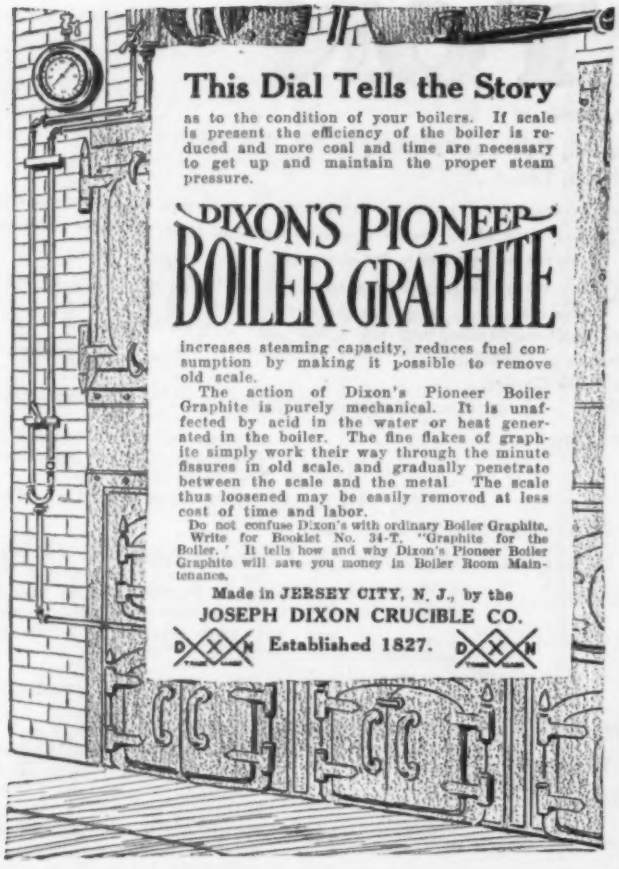

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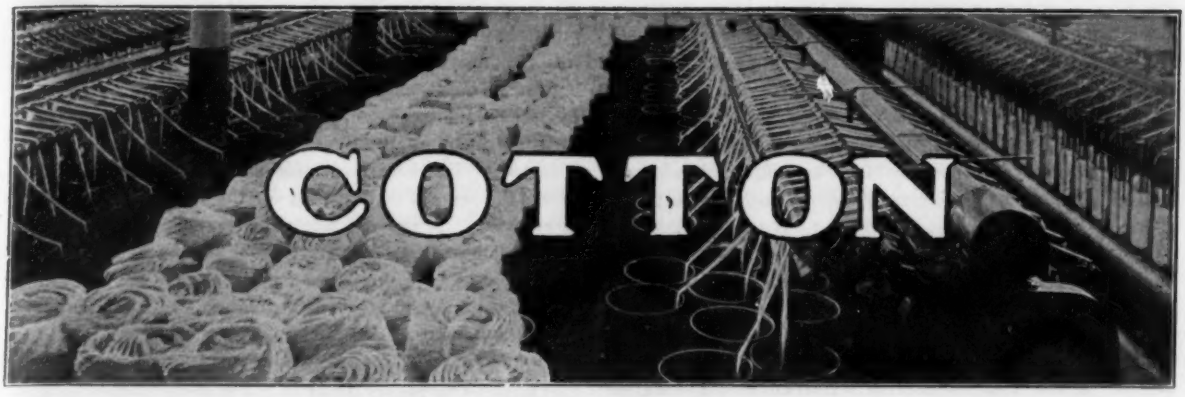


January, Nineteen-Nineteen

The Smith-Hughes Act and the Southern Mills.

Under the provisions of the Smith-Hughes Act, the Federal Government distributes to each one of the states, if they accept the provisions of the act, a certain amount of money for industrial education. This money is provided annually beginning July 1st and is increased 50 per cent each year until 1925-1926, when it will reach its maximum and no further increases will be considered. These moneys are distributed among the states on a basis of population and are applied under the rulings of the Federal Board for Vocational Education.

On the 12th and 13th of last August, a conferences was held at the Piedmont Hotel in Atlanta at which these questions were thoroughly taken up from the viewpoint of applying as much of this money as seemed consistent, particularly in the southeastern district, to the furthering of vocational textile education among the mill people of this section. As a result of this conference, Roy Dimmitt, Federal Agent for Trade and Industrial Education for the Southern region, who is in charge of this work, has an excellent program now under way. He is being assited in this work by Mrs. Anna L. Burdick, Federal Agent for Trade and Industrial Education for Girls and Women, and W. G. Blair, Special Agent for Trade and Industrial Education along Textile lines.

Several centers have already been visited with a view to making recommendations as to the best places to start experiments. Two centers have been recommended, namely, LaGrange, Georgia, and Greenville, S. C. It is quite probable from present indications that at least twelve or fifteen centers will be selected for setting up part-time and evening courses. The points taken into consideration in recommending these centers are—

1. The possibilities of co-operation with the State Board for Vocational Education.

2. The possibilities of co-operation with the local school authorities.

3. The possibilities of co-operation with the textile manufacturers.

This, of course, does not exclude all other considerations, such as general condition of the textile industry, general condition of the schools, attitude of the workers toward vocational education, etc.

The tentative courses of study have been very carefully drawn up through consultation with superintendents of schools, mill owners, and operators. These tentative courses of study embrace thirty-seven unit courses for vocational textile classes, each course embracing from three to, in some cases, as high as forty-eight lessons, depending entirely upon the complexity of the subject and the degree of detail into which it seems advisable to enter.

These tentative courses of study were submitted to a committee consisting of W. S. Dean, a former textile school instructor, later connected with the Federal Board for Vocational Education, and now superintendent in a large cotton mill; S. Yates Austin, General Manager of the Hillside Cotton Mills at LaGrange, Ga.; and George H. Lanier, Vice-President and General Manager of the large Wellington-Sears group of mills, with offices at West Point, Ga.

It is not intended that these courses shall be in all cases strictly adhered to,

As most readers know, there was held last month at Atlantic City, a great Industrial Reconstruction Convention, representing practically every industry in the United States and attended by the country's foremost manufacturers and business men.

The editor of COTTON was asked to attend this conference and act as secretary for the Cotton and Jute industrial groups. Owing to unfortunate circumstances, one of which was that the editor of COTTON was thrown from a street car and is now confined to his bed with a fractured hip, he was unable to attend this conference.

Means were taken, however, to get into close touch with all that transpired and to maintain contact with any subsequent development or activity resulting from this conference, so that COTTON will as usual keep its readers fully informed of any developments of this conference that will be of interest to the South's cotton and textile industry.

and a brief survey is usually carried on in the community under consideration, both from the standpoint of general and textile education, so that the best interests of those employed at the textile mills may be served when the basis on which the type of school to be established is determined. The aim is to get courses of instruction inaugurated which will be modified from time to time as additional information is obtained and such modifications seem to be necessary.

In addition to the foregoing precautions to secure the very best results, it was deemed advisable to have an Advisory Committee of experienced textile manufacturers appointed to work in conjunction with the Federal Board for Vocational Education and to this end, President Arthur J. Draper, of the American Cotton Manufacturers Association was requested to nominate five men for this committee. The committee nominated by President Draper and appointed by the Federal Board for Vocational Education is made up as follows:

Allen F. Johnson, Chairman of the Board of Governors of the American Cotton Manufacturers Association, and President of the Exposition Cotton Mills, at Atlanta, Ga.

Fuller E. Callaway, Treasurer and Directing Head of the Callaway-Truitt group of mills at LaGrange, Ga., Manchester, Ga., and Milstead, Ga.

B. E. Geer, President and Treasurer of the Judson Mills at Greenville, S. C., The Katrine Mfg. Co., Fork Shoals, S. C., and Secretary of the Blair Cotton Mills, at Belton, S. C.

John L. Patterson, Member of the Board of Governors of the American Cotton Manufacturers Association, and Vice-President and Manager of the Rosemary Mfg. Company, at Roanoke Rapids, N. C.

L. L. Arnold, Editor of COTTON, Atlanta, Ga.

The first meeting of the this Advisory Committee was held in the offices of Mr. Dimmitt in the Candler Building, Atlanta, Ga., on December 12th, but little business was transacted other than the discussion and approval of the routine work so far accomplished by Mr. Dimmitt and his able assistants. Prompt action is urged on the individual mills who are interested in this textile educational work and inquiry should be made through the Director of the State Board for Vocational Education in the state where the mill is located.

Any additional information will be gladly furnished on inquiry to the Editorial Department of COTTON.

The Injured Soldier in Industry.

Soon after the outbreak of hostilities, European countries began the establishment of vocational training schools for the rehabilitation of disabled soldiers. The movement had its foundation, not only in the humanitarian aim of restoring crippled men and placing them upon self-supporting basis for the sake of the man himself, but it also embraced the economic idea of sparing the community from bearing the burden of unproductivity that would otherwise settle like a mantle on the shoulders of what were formerly its best citizens.

The disability of some crippled soldiers offers no bar to their returning to former trades, but on the other hand the injuries of many frequently disqualify them from again pursuing occupations with which they are familiar. It was the intention, therefore, to prepare schools of training to fit these men for some classes of work where the physical handicap would not materially interfere with their production. However, whatever training is given in a school of this character must be thorough, for an adult cannot be sent to employment on the same basis as a boy apprentice. He must be adequately prepared for the work he is to undertake. Not only that, but much thought and wisdom must be utilized in selecting the job for the different capacities and types of casualties that come forward for attention.

Following foreign practice, efforts have been made in this country to render relief to the injured soldiers as soon as they are released from the base hospitals. In order to secure the most efficient service, this work was placed under the direction of the Federal Board for Vocational Education, and more immediately under the direction of Dr. C. A. Prosser, the Director of that board.

With the thousands of trades, professions or occupations at their disposal, it of course, renders the work of selection or assignment of proper men for suitable jobs one of considerable difficulty. The textile industry offers many such openings that are especially applicable for our injured soldiers, the intent being, of course, to so place a man that despite any physical disability which he may possess, he will still be enabled to earn a salary fully as great as that of his uninjured co-worker. This places the injured man on the same basis of productivity and makes him equally as valuable an employee of the mill as if he were fully equipped physically.

As a concrete example of this, we reproduce a photograph of Ira Wheeler, a weaver in the Aragon Cotton Mills, at Rock Hill, S. C. Although unable to walk without

crutches, he operates twenty Northrop looms on 80 x 80, 39 inch, 4.00 yard goods, making first quality cloth and getting full production. He rides on a truck which runs on a wooden track between the looms; both the truck and track being of his own construction. His success in the face of this serious handicap, not only shows what can be done by one weaver on automatic looms, but also shows that the former standard of sixteen looms on 28 inch print cloths established in certain mills a number of years ago is far short of what can be operated by a good weaver even under adverse conditions.

It is of interest to note in this connection that the photograph of Mr. Wheeler was made in 1912 but that he is still operating these twenty looms at the Aragon Cotton Mills in competition with hundreds of able-bodied weavers.

The cripple is no stranger to the textile industry. Many other instances might be outlined and even illustrated if necessary, showing a man with one leg doing very efficient work in the cloth room; operatives with greater or lesser injuries to their hands operating drawing, fly frames, spinning frames, twisters, and similar machinery. But, we do not wish to devote too much space or too much attention to what might be termed the obvious war cripples.

There is another class of casualty that has arisen through this great war that was seldom if ever heard of in the past. We refer to the many men who have been injured through gassing. The gas attack in quantity was a comparatively new development and our base hospitals contain hundreds of men apparently physically fit who are really in a more or less weakened condition owing to the result of being gassed by some of the hellish combinations "made in Germany." These men may be merely suffering from irritated lungs, or they may have had a severe attack of pneumonia as the result of being gassed, or they may still further have lost the use of a part or an entire lung through the ravages of the latter disease.

Naturally men in this physical condition will be more easily influenced by bad weather conditions or severely strenuous work than would otherwise be the case, although they look perfectly well and healthy. Therefore, it is for this class of men that we wish to make a special plea to Southern mill owners and managers. The salubrious climate of our southern country, with its mild winters and dry atmosphere is particularly well adapted to men suffering from this character of injury.

The work conditions surrounding the operatives in a modern mill spinning room, for example, are ideal for persons in this condition, the evidence of our friends on the national child labor committee to the contrary notwithstanding. The temperature is remarkably stable, the humidity not in excess and the high, light, airy and well ventilated rooms are the equal of any sanitarium to be found in the Piedmont section.

Of course, the number of positions for grown men in a spinning room are comparatively few, but the great number of such rooms in operation in the southern states would allow for the accommodation for a number of these men. This was cited merely as an example and many similar positions could be found in other parts of the mill as well as doing outside work around the mill yard. Very naturally the wage that would accompany such positions would depend entirely upon the position and upon the mental qualifications of the man. But, these are mere details. The fact we wish to emphasize is the possibility for aiding this class of war casualty in the special climatic section best adapted for this particular physical deficiency.

A Report on the Pink Boll Worm.

If the report of August Busch, sent to the Laguna district of Mexico to investigate the conditions raised by the pink boll worm, may be accepted as final it is a serious situation which obtains in this cotton-growing section of our neighboring country. And by this token, it is a serious situation for the United States. As Mr. Busch was sent by the United States Department of Agriculture, at the request of the Mexican Government, his report will bear close scrutiny and his suggestions carry weight. Therefore, that he shows a "constant annual loss of from 2,000,000 to 8,000,000 pesos, or $1,000,000 to $4,000,000 gold," through the ravages of this pest is a matter for profound consideration.

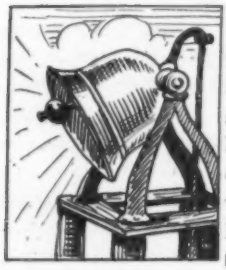
This constant loss is a serious lessening of the potential production of the Laguna district, says Mr. Busch. Furtheremore, he finds it an item for consideration from a National standpoint, as the "Laguna district is properly considered an asset to the whole of Mexico." He calls attention to the fact that this country has been forced to establish a quarantine along the Mexican border because of the pink worm, this delaying all freight cars and hampering business between the two countries, as well as increasing the expense thereof. More serious than this is the danger that other cotton-producing regions of Mexico may become infested with the pest. Lower California, potentially of far greater value than the Laguna district for cotton is included.

Finally, Mr. Busch says that, "considering these several reasons, the present large annual losses and the constant menace of far greater losses, I beg respectfully to suggest, on purely economic grounds, as a good investment, the urgent advisability of a federal law prohibiting the growing of cotton in the Laguna district and other infested areas for two years, with a possible third year added if in the opinion of your scientific experts this is required, and the compensation by the Federal Government to the planters of the Laguna district of the difference in profits which they will suffer from such a law by being forced to plant less profitable crops. Such Federal measure would indeed seem obligatory not only to the present economic advantages to the country, but from the duty to serve the future generations by protecting the country's resources."

A New College Magazine.

The Nan Tung Textile College, of Nan Tungchow, Kiangsu, China, which is the only textile institution of its kind in China, will begin the publication of a semi-annual textile journal, printed in both Chinese and English, the first copy to bear the date, January 1919. Any readers of COTTON, who may be interested in what the Chinese are doing in this direction, may secure a copy of this magazine by sending their names and ten cents in stamps to Mr. B. Y. Lee, at the Nan Tung Textile College.

Give Your Mill Individuality.

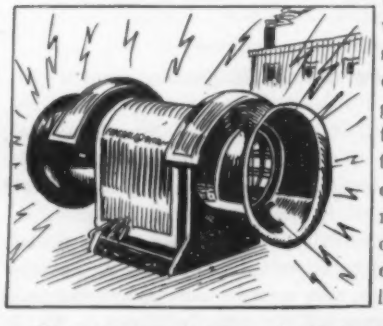


In the olden times when cotton mills were small affairs employing only a few families, these lived in a dozen or so houses grouped closely about the mill, and were awakened in the morning and called to work at all times by a small bell located in or near the mill. As the mills grew larger, bigger bells were installed, and these may still be heard ringing in the older mill settlements, particularly in New England.

Years passed and not only did the mills grow in size but the operatives called for more modern living conditions. The old four, six and eight tenement houses, or blocks as they were called in the New England section, were no longer attractive and individual families either bought homes of their own, or rented cottages from private owners, frequently located a mile or more from the mill. While the operatives were supposed to be always on time in reaching their work, the multitude of clocks frequently varied from the mill time-piece causing late workers and much friction. These conditions brought out the heavy steam whistle that was supposed to have the necessary penetration to be heard long distances This is not always the case, however, because the night fireman does not always have a full head or pressure of steam in time for the early morning blast that is supposed to awaken the sleepers.

Southern mills, profiting by the experience of the industrial pioneers, were nearly all equipped with whistles. But these mill men had also profited by the experience of others in the housing situation, and their villages cover wide areas with plenty of land space for each individual cottage, so the whistle question still remains a not unmixed blessing.

Furthermore, as hydro-electric development progressed, many mills utilized purchased electric power, retaining their old equipment as a stand-by plant and using only sufficient boiler power to furnish steam for slashing and such minor activities as blowing the whistle, etc. While low pressure steam answered every purpose, it accentuated the trouble at the whistle. Also where several mills are located in the same general community, there is little distinction in the same general sound of the various whistles, which often adds to the confusion already alluded to.



Into this breach comes the Federal electric siren with a wierd penetrating screech that is the most distinctive, commanding and far reaching signal ever devised. With a penetration radius of one and one half miles, it awakens operatives for miles around, while for fire and emergency purposes it penetrates every nook and corner of the plant commanding immediate action. The cost of the current consumed by a large siren averages two dollars a year and it operates at the touch of a switch which may be located at any convenient point around the plant.

Cotton and Textile Interests Represented at Meeting of Manufacturers' Council in New Jersey.

An important meeting of the Manufacturers' Council of the state of New Jersey was held at the Robert Treat Hotel, Newark, N. J., December 11, being called for reconstruction and readjustment purposes to handle the many problems confronting the cotton, textile and other industries in the state. About 300 members were in attendance to hear the opening remarks of President Warren C. King, who pointed out the present need for the consideration of such subjects as the cancellation of Government contracts, labor, plant readjustment, and other primary factors of operation.

Upon the recommendation of President King, an Industrial Commission was organized from the membership of the Council to be composed of five representatives from manufacturing, agricultural, banking and public utility interests, respectively, making a total of twenty members; and ten members to represent labor, five each from manufacturing and public utility interests respectively. This Commission will engage in Common Council to formulate definite plans for immediate action for the individual benefit, as well as unified advantage of those affiliated with the organization.

In connection with the subject of labor, which proved to be one of the most important and carefully discussed topics of the different sessions, a resolution was passed holding "that there should be no radical reduction in the matter of wages until the purchasing power of the dollar increases, and that in any event wages should be the last thing to be cut in any readjustment." It was pointed out that overtime must cease, and a gradual return to the normal eight-hour working day, and in this, labor itself represented by delegates, thoroughly coincided.

At the morning session addresses were made by John D. Everett, former president, the New Jersey State Bankers Association; Dr. J. G. Lipman, Dean and Director, New Jersey Agricultural Experiment Stations; Arthur A. Quinn and Henry F. Hilfers, president and secretary, respectively, of the New Jersey State Federation of Labor. A banquet was given in the hotel ballroom in the evening, at which Mr. King acted as toastmaster. At this event, interesting addresses were made by W. H. Besler, president, Central Railroad of New Jersey; Dr. W. H. S. Demarest, president, Rutgers College, and Dr. Alexander C. Humphreys, president, Stevens Institute of Technology, with the final address, one of the most important of the evening, by Myrza Ali Kula Khan, Persian minister to the United States. Peter Smith, of the Barbour Flax Spinning Company, Patterson, N. J., is third vice-president of the organization. This company, as well as the J. E. Barbour Company, Patterson, cotton goods, are members of the Council.

Some Incidents of the Year

It would be futile to undertake a comprehensive review of the cotton goods year of 1918 at this time. Books will be written of it by economists and others, and those who have lived through it will recall its vivid history while they can remember anything. It was a year when raw cotton rarely went under 30 cents a pound and at times it went 20 per cent higher. At no time was there a dearth of cotton in this country or likely to be, nevertheless, values were well sustained.

Manufacturers as a rule found little fault with the price although those who speculated and those who write for speculators had much to say of the price. Truth to tell, manufacturers took a keener interest in trying to push through measures for improving the means of holding and marketing cotton, the most tireless work being done by manufacturers associations interested in establishing a chain of warehouses and taking advantage of the Federal Bank opportunities for financing the American crop at home through the use of trade acceptances.

When it became essential for the Government to step in and fix the prices on cloths and yarns, there was a natural desire among spinners that the raw material should be fixed in price also. Had it been as easy for the Government to have handled a whole season's crop by financing it, and promising to the grower a certainty of a good price for a succeeding crop, it might have been possible to put through some sort of a price fixing plan. Eventually methods were adopted that tended to stabilize values and only those who will speculate in the hour of the country's need, or on the death of a friend, found serious fault with the policies that were adopted. The prime thing was that sufficient encouragement was given to the farmer to grow as full a crop as he could, and so far as planting the acreage was concerned the early estimates showed that the southern farmer was not a slacker in war times.

Within a few days of the opening of the year cloth markets began to advance sharply. In the first month of the year prices went up on wideprint cloths from 1 cent to 1½ cents a yard. Narrow print cloths, and especially all thin constructions ran up to a value of 85 cents a pound. Some medium weight sheetings went to 66 cents a pound and fine combed yarn cloths began to move up.

In February the markets became very strong. Combed yarn cloths jumped in value 2 cents and 3 cents a yard. Fall River mills were forbidden by the Government to sell any thin constructions until allotments could be made for manufacturing purposes among all the mills. Approximately 25,000,000 yards of print cloths were bought for raincoating and over 100,000,000 yards of goods were bought for bandage cloths.

In March there was a further wild rise in values on cloths and by that time the Government boards had begun to take action looking toward price fixing. For weeks the manufacturers and merchants refused to believe that anything could be done to regulate cloth prices the chief argument being that the problem was too complicated, but before the end of March the idea was firmly fixed in the minds of a few men that price fixing would have to be arranged in order to stabilize values. Some cloths advanced 20 per cent in the month of March, principally fine combed yarn goods that had been underpriced compared with the rest of the market.

In April there was further huge buying for Government needs. Action was taken by the authorities to co-ordinate the buying of the Red Cross and the Government, both being preferred customers at the same price, the purpose being to stop the competitive bidding on the part of local chapters and others, in the hope of stabilizing prices. There was a sharp drop in raw cotton during this month, but the strength of the cloth market was shown by the maintenance at the close of the month of the prices obtaining at the opening. Price fixing talk in this month was of a more positive character.

Continued large Government buying dominated the cloth markets in May and prices on combed yarn goods showed a further advance. Pending the allotment of production for Government purposes, many twills, drills, and other fabrics could not be sold by agents to the trade, and the scurrying among second hands became a feature of the market. Price fixing action became imminent and while there was considerable resistance to it in the way of adverse criticism of its possibility, it became recognized in the most influential circles that if the trade did not take hold and make it a success, the Government would take the matter in hand at once.

By the early part of June the first official announcement fixing cotton goods prices came forward. Preliminary action toward stabilization was taken by a presidential proclamation reducing the prices to the basis of 70 cents for medium sheetings, 60 cents for heavy weights, and 83 cents a pound for print cloths. These reductions represented drops from the top of the inflation of 30 per cent. Some sheetings had reached nearly a dollar a pound, and several print cloth constructions sold at over that figure.

In July, when the Government began to issue its prices and the work of forcing stabilization in the trade became a patriotic duty, business quieted down to some extent. Nevertheless, there was no time when there was not an overabundance of business for the mills at highly profitable prices. In second hands, it became apparent that the Government would not tolerate further speculation and some odd lots began to come out for sale before compulsion was used in curtailing the inflated profits that were being exacted.

From August onward the trading in the markets was not large except where war goods were concerned. There was plenty of demand but a limited supply. Second hand and speculative trading were reduced to slim proportions compared with what had gone before but this did not prevent a steady rise in retail channels. It began to be felt toward the latter part of September that the war could not go on and from time to time prudent buyers resold and relieved themselves of goods they wished to liquidate. By the time the first burst of false peace hit New York meetings had been arranged at Washington that portended a downward revision of the Government price levels and while no action was taken at the first conferences in November, by November 11th, the armistice had come and then came the end of price fixing. A decline followed, but

curiously enough it was not sudden nor so demoralizing as many had predicted.

A short table of prices will show the range of values during the year, as follows:

Cloths	Opening	High	Gov't Price	End of Dec.
39 in., 80 x 80, 4.00 yd.	15¾	26	21½	17½
39 in., 72 x 76, 4.25 yd.	14¾	23	19⅞	16½
39 in., 68 x 72, 4.75 yd.	13½	20½	18	14
38½ in., 64 x 60, 5.35 yd.	11¾	19	15½	11¼
38½ in., 60 x 48, 6.25 yd.	10¼	16¾	13¼	10
27 in., 64 x 60, 7.60 yd.	8⅝	13¼	11¼	8¾
36 in., 48 x 48, 4.00 yd.	15	23	16⅜	14½

These latter prices represented a low point from which there was some recovery manifested in the last half of the month under very small trading. It was the general understanding that mill stocks were light at the close and that second hands had pretty well liquidated any burdensome stock they were carrying. But most mills were in need of orders for the first half of the year so that there was still some doubt as to the immediate course of orders.

Because of the commandeering of looms and the constant pressure of mills to secure work in order not to be hampered by the many restrictions imposed by the Government to conserve production for war purposes first, the mills found themselves well filled up with war contracts when the armistice was declared. There was an immediate demand for the cessation of production in order to lessen the great war expenses. Cancellations and discontinuances of contracts by the government was a signal for the spread of a fever of cancellations all through the country. Selling agents and others came together and began to take action against any attempts to cancel unjustly and the net result was that a very safe margin of orders was retained on the books, and by the end of the year many of the high priced contracts had been filled.

Where there were prolonged delays in delivery, cancellations were accepted in a number of instances but where any attempts were made to cancel for unjust causes, or because of fault finding with merchandise, it was soon made apparent that the merchant was hitting at his own credit so that cancellations were stemmed. Selling agents of mills established exchanges of information about all those who cancelled for unjust causes and it will be difficult for these offenders to do business later on. But cancellations were not confined to this country. They affected English mills even worse than our own, at one time Manchester reporting that 50 per cent of the goods on order were held up by requests for non-shipment and cancellations.

A great many goods had been bought for export from all sorts of sources and by all sorts of buyers, many of whom had never engaged in the foreign cotton goods trade till the United States entered the war. They were unable to ship goods and this congested merchandise was offered steadily to the home trade. A great deal of it was absorbed at the year end and the decks are clear for a foreign trade that will last if it is is done right.

When buyers began to cancel merchandise in the last part of November, selling agents handling finished goods going to the jobbing trades and to some extent to the manufacturing trades, decided to stand pat and not make new prices until after the turn of the year. In several instances, notably in prints and the gingham lines, notices were sent out that spring prices would remain unchanged. Agents figured that nothing could be gained in the way of large sales by price revision at the moment when world confidences in values was shaken, and having learned a lesson in co-operation during the war it was decided to co-operate to stabilize things for a time during the discussions of peace making.

The magnitude of some operations in cotton goods during the year were unthinkable a year ago. For example, the government came forward in May and bought three fourths of the output of the denim mills for the last half of the year. The largest duck mills were able to sell less than 10 per cent of their output through civilian channels and then only by government permit, or when looms not usable by the government could be used for civilian work. Carpet mills, quilt mills, and even upholstery weavers engaged in making duck and this brought on a huge demand for yarn for weaving purposes.

The war prosperity of the mills was unparalleled. In its dealings with manufacturers the Government adopted the policy of leaving wide margins for profit to stimulate as full an output as possible. As a consequence more than one mill earned as much as its capital in a single twelvemonth. The dividends paid to Fall River stockholders averaged 25 per cent. Mill communities did astonishing things in the way of buying Liberty bonds, and making charitable contributions for war purposes. Operatives made double wages in many instances and on the whole the freedom from labor disputes was noteworthy. Labor scarcity was one of the things that the war itself brought on, yet the volume of production was maintained at levels no manufacturer would predict was possible, had he foreseen the conditions he met up with.

Owing to the war conditions, some of them being in the nature of prohibition of work in shops and building not directly related to war, mill building was comparatively small. Prices for mill machinery reached very high levels, but even at the high prices deliveries could not be secured except where government orders were concerned.

"Hess-Bright Ball Bearings" is the title of a new 108-page book just issued by the Hess-Bright Mfg. Co., Philadelphia. This book, which is printed on heavy tinted stock in colors, is thoroughly illustrated and describes the many uses to which Hess-Bright Ball Bearings have been applied. The book is bound in boards for permanent reference purposes and is a desirable addition to the ball bearing literature on the bookcase shelves of any manufacturer.

The Arizona cotton crop, grown chiefly in the Salt River valley, near Phoenix, where the Goodyear Tire & Rubber Company owns the largest cotton growing plantation in the state, has been of wonderful benefit in the prosecution of the war. The larger part of it has been utilized in the manufacture of high-grade automobile tires, for which purpose it is the best cotton known. Another use to which it has been extensively put is that of making thread—both of these items being prime war necessities. The well-known Egyptian grade only, is grown in Arizona, and is of a better quality than the Egyptian cotton grown in its native land.

Playgrounds, Parks and Parkways for Southern Mill Villages

by E. S. Draper, Landscape Architect and City Planner*

Courtesy of Draper Corporation, Hopedale, Mass.

A GOOD ILLUSTRATION OF A PLAYGROUND IN UTILIZATION, WELL BORDERED BY ATTRACTIVE PLANTINGS OF TREES AND SHRUBS.

The southern textile mill village in progressing from the typical monotonous, dreary village of a few years past has undergone a radical change in design and appearance. Many problems, each with a local aspect peculiar to the industry, have been met and solved, and new ones still come up every day.

The village typical of the old unprogressive times is little known today. Almost every mill in the South has undertaken some improvements, varying widely in character and scope, to improve their village. The old style mill village, with its monotonous layout of streets, has been improved by street and walk paving, tree and shrub planting, architectural improvements to the old village houses, and added houses and community buildings of modern design, so that the faults in the original planning of such a village have been very well camouflaged. A considerable percentage of the new mill villages laid out during the past year have been well designed and planned prior to their construction. Such villages have the advantage of a well studied layout on which to base future improvements. Such mills as Parkdale and Myrtle, Gastonia, N. C., Spencer at Spindale, N. C., Alexander Mfg. Co., Forest City, N. C., Carolina Cotton & Woolen Mills Co., Fieldale Department, Fieldale, Va., the Haynes Mills, Avondale, N. C., have taken advantage of their initial opportunities.

The mills in developing and maintaining their villages are facing new problems each day. The necessity of providing amusement and recreation for the employees has led to the establishment of community houses, gymnasiums, libraries, movies, theatres, kindergartens, day nurseries, model kitchens, lunch-rooms, where before the village church and village school were considered to supply the full needs of the community; to the construction of playgrounds with play apparatus, parks, parkways, where formerly the village street or an open field was considered to furnish ample means for the little recreation adjudged necessary. Improved housing along both practical and artistic lines has gone hand in hand with vastly bettered methods of sanitation and water supply. Most mills have been consistent in educating the people to the values of the improvements, thus enabling them to take full advantage of their better living facilities. Such details as the provision for employees' automobiles in community garages, handling of house garbage in individual cans, the relegation of cows and hogs to well maintained community areas, and many others have been in many cases well studied.

We may be justified in saying that the first era of village improvement in the South—practically a decade in length—is past; and that we are now entering on a richer and breader stage of development than the one passed through, one which will take full advantage of the improvements already wrought, and only seek to multiply and intensify such developments in the most far reaching way. Quite logically, the improvements of the past few years have extended along the lines of new and improved buildings and houses, better sanitation, water supply, street improvements, and practical amenities of village life. Quite naturally, further improvements have and will take into consideration the question of intensified outdoor recreation and rest and general improvement in the village appearance. Nowhere can Parks and Playgrounds be more justified than in the mill village, and public opinion now considers them an absolute essential to the life, health and happiness of a community.

In city planning work—and mill village planning involves all the principles of such work—parks and playgrounds are usually divided into seven classes: schoolgrounds, playgrounds for small children, playfields for baseball, etc., neighborhood and community parks, large coun-

*505-6 Trust Building, Charlotte, N. C.

try parks or reservations and parkways. In planning parks and playgrounds for southern mill villages, the following classification is of great value.

A.—Playgrounds

1.—School and nursery yard playgrounds (for recess use by children of school age).

2.—Playgrounds for small children.

3.—Large playfields (for use by all ages from school children to grown people).

B—Parks

1.—Community centre.

2.—Intersection parks.

3.—Neighborhood parks.

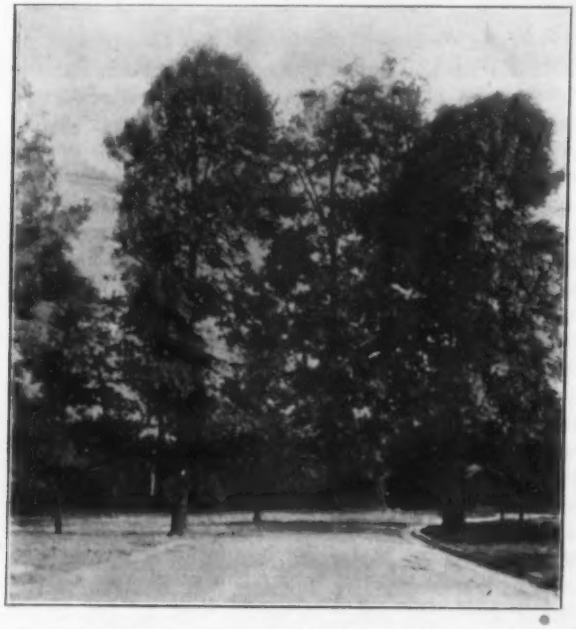
4.—Large parks (usually including recreation as well as rest features).

C—Parkways.

1.—Parkway (informal, in width not less than 150 feet).

2.—Boulevard (formal, in width 100 feet or over).

A small mill village may often combine a number of these features to advantage. In a large village of two hundred houses or over, adherence to the principles of this classification in planning the village or its improvement, will add greatly to both the usefulness and the appearance of the park and playground system. A park and playground system including the different features noted for a large village, has the same value to the mill as do houses of different sizes and styles in that they both serve the varied needs of the employees, in addition to rendering the village more attractive.



ENTRANCE TO THE NEWEST SECTION OF THE VILLAGE AT THE ERLANGER MILLS, LEXINGTON, N. C.

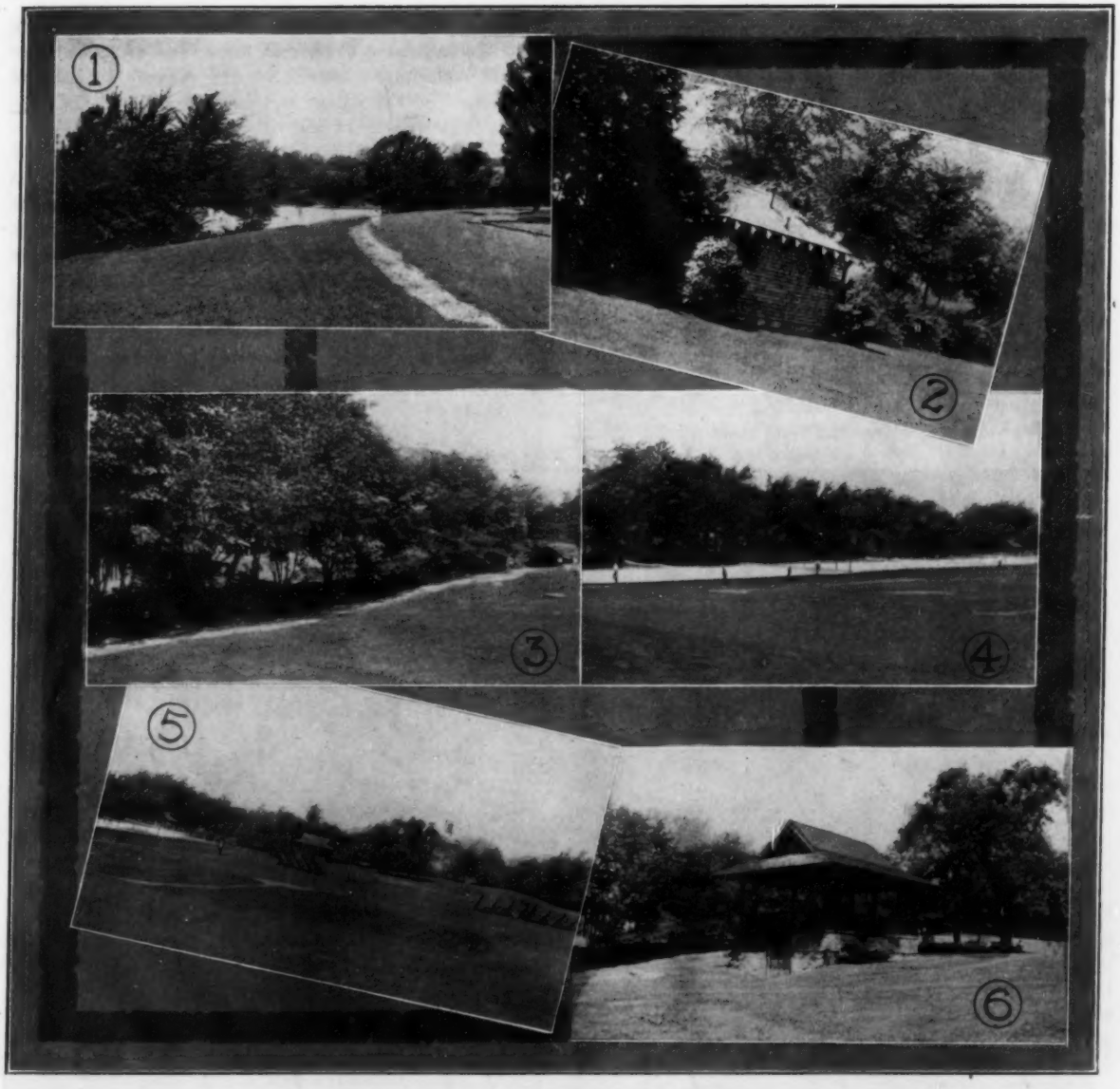
The foregoing outline is necessarily meagre and possibly confusing to the layman without explanation. We feel that *athletic recreation* is the first need of the mill village; hence, place the playgrounds first. Parks, when large, may combine both recreative and rest features, but when small are usually purely for rest purposes. Parkways are essentially improvements to the general appearance of the village. Although in city development the parkways often include features of the above mentioned classes, yet in mill villages their main purpose is to render more attractive various approaches and leads through the villages.

Playgrounds.

Playgrounds under proper direction and supervision and when planned with modern apparatus and game courts can well serve the needs of both old and young in the village. From the children with their swings, teeters and giant strides, to the elders with quoits, volley ball and base ball—there is no age which does not have need of a playground. Necessarily (and this applies particularly to a large village), it is not always satisfactory for all ages to play together, and this leads to the necessity of different types of playgrounds. We have first the *school* and *nursery yard playgrounds* of use during recess periods, which should contain various types of apparatus and some few game courts, particularly basket ball. Most important in these playgrounds is *open space* for improvised games of tag, etc. Children after confinement are restless for space to run and play, and hence the greater portion of the space should be left open. Not less than two acres will make a satisfactory school playground. The exact size of the school and the relative nearness of other playgrounds being important factors. It is a matter of knowledge that few school playgrounds are intensively used out of school hours. If sufficient space exists—and usually it does—the school yard should be developed for recess activities and the main playgrounds or playfield developed elsewhere. From the standpoint of school control, after hour sessions, etc., it is often advisable to encourage

WHERE THE ROAD BENDS. A STREET AT THE ERLANGER MILL.

THE HERMITAGE MILLS, CAMDEN, S. C. PLAN TO KEEP THIS CREEK FOR AN ASSET, AND A PARKWAY IS TO BE EXTENDED ALONG ITS SHORES.



(1) A TYPE OF PARKWAY FORMED BY USING THE AREA BORDERING THE SHORE OF A BODY OF WATER. (2) LARGE PARKS AND PLAYGROUNDS REQUIRE REST HOUSE OR TO LETS WHICH MAY OFTEN BE SET INTO THE SHRUBBERY SO AS TO BE COMPARATIVELY INCONSPICUOUS. (3) A BORDER PLANTING OF TREES AND SHRUBS SHOULD BE USED TO SEPARATE THE PLAYGROUNDS FROM VILLAGE STREETS WHEREVER THE PLAYFIELD IS OF FIVE ACRES OR OVER IN EXTENT (4) TENNIS COURTS ON A PLAYFIELD, SHOWING THE TREE BORDER IN THE BACKGROUND. (5) A TYPE OF BROAD, OPEN PLAYFIELD WITH BASEBALL DIAMONDS, TENNIS COURTS, ETC. (6) A NEAT ARRANGEMENT FOR A PARK BANDSTAND.

play elsewhere; added to which is the normal child's preference to play away from the school house outside of school hours.

Hence comes the need of *playgrounds* for *small children* of ages up to ten years as a separate feature. Some communities have been so planned that waste space in the blocks in the rear of the lots can be devoted to playgrounds for small children living in the section. Oftentimes the topographical features of the land necessitate extreme width between streets, thus enabling the *block playground* to be planned as a feature of economy in using the land. The possible advantage of such a block playground in being away from streets and travel is somewhat offset by the difficulty of supervising a number of small playgrounds of this sort. However, such problems cannot be generalized and must be solved by study of the individual problem. Wherever the playground for small children be located it should be fenced in. Small playgrounds are usually more attractive—particularly in the South—when partially wooded. The advantage of well placed playground apparatus of different types and of playground supervision by a skilled director—in this and other playground and playfield developments for all children of immature age—are two points that are all important.

The large playfield, five acres or more in extent is suitable for all ages from children of grammar school grades with an intense interest in marbles and baseball, to men of maturity, ranging from the men more active who pre-

fer baseball, football, basketball and volley ball to those older in years or quieter in temperament who are content to pitch horseshoes. Scarcely any boy or man has not his favorite sport, and if opportunity be given, will frequently indulge. Participation in wholesome outdoor activities by employees of maturity will often prove a strengthening factor in the village morale. Land best suited for the playfield is open, well drained, fairly level or easily accommodated into various levels for game courts. Such a playfield is always more attractive, if bordered with trees and large shrubs.

Parks.

Parks very often include playground features. It is, however, possible to separate their functions, and it is sometimes advisable to do so, hence our reason for discussing them under different headings.

The Community Centre—the focal point of the village, in the eye of the passerby. Although a comparatively small feature, yet a number of these little parks at intervals throughout the community will improve the general appearance of the village and exert a splendid influence on the improvement of the village yards.

The *Neighborhood Park*—so called because it is usually a small plot of ground averaging an acre in size and planned as a restful oasis for the people of the neighborhood—may oftentimes utilize land which is steep, rocky, or otherwise unsuited for employees' houses. When properly developed with walks and seats, fountains or other features of interest and planted with interesting trees and shrubs, the little park stands out as a gem of nature in the village setting. Such a park is distinctly for rest, being too small for recreation, and as such serves a legitimate need in the village life.

The *Large Park* should be an area of ten acres or more

A SMALL PARK DEVELOPMENT IN CONNECTION WITH THE VILLAGE OF THE ANCHOR DUCK MILLS, AT ROME, GEORGIA.

the center of its community life around which are grouped buildings of a community nature, should always be designed to allow of sufficient open space to give an adequate setting to the buildings and allow people to congregate without crowding. This open space should be treated as a park, designed with walks, seats, features such as bandstand, pavilion, etc., to serve as a restful center for people who congregate there.

Street Intersections give coutless opportunities and attractive sites for little parks. If large enough for paths, seats, etc., they are more properly placed under the heading of *Neighborhood Parks*, but, if as usual, they are small intersections between streets meeting at an angle where a cross road connecting for convenience has cut off a small triangular space, they are more properly called *Intersection Parks* and are treated merely to create a spot of beauty

in extent and may include within its boundaries the Village Playfield. This is often a very satisfactory relation of park and playground activities, particularly for a large village which can spare a 10-20 acre tract for park and playground purposes. Oftentimes a portion of the park will be naturally wooded and can be treated without disturbing the trees, preserving them for the admiration of future generations. Provided the mill owns considerably more land than is included within the immediate confines of the village, this land can be utilized and maintained as a large natural park reserve until such time as future development may require its use for village purposes.

Parkways.

In speaking of *parkways*, we have in mind particularly the areas embraced within street improvements, or between streets and rivers, lakes, or reservoirs. The most

important use of the parkways as a feature of mill villages is in connection with the ravines which are so common on Southern village sites. By bordering the ravine, with its brook or creek, on each side by a road, we have created an attractive parkway with houses fronting it by using land unsuitable for building purposes. Parkways in width including the street widths, should not be less than 150 ft. and are usually informal in design and treatment. Another important parkway treatment occurs in connection with a lake or river in the village by utilizing the land

THE ADVANTAGE OF RETAINING ORIGINAL FORESTRATION SHOULD NOT BE IGNORED IN THE LAYING OUT OF PLAYGROUNDS.

bordering the lake for such purpose rather than backing the houses on the water.

A *Boulevard*—100 to 200 ft. in width—differs from a parkway in usually taking up land fairly level topographically and being the result of deliberate design rather than practical necessity. As such, it is more formal and is appropriately used only in the large village developments.

Now that the problems of park and playground improvements in the southern mill village are becoming more

A SCENE FOR SOME FUTURE PARK DEVELOPMENT.

important each day, it is important that a program of improvements for each village be studied before constructive developments are undertaken. The example of the United States government in connection with the community planning for shipyards and ammunition plants in carrying out most completely each housing development and in providing liberally for park and playground areas in each community in order to render conditions attractive in every way for the workingman, should stimulate private corporations to do likewise. Experiences from the past indicate that the village most completely and attractively developed, with its commmunity buildings, attractive houses, sanitary safeguards and park and recreational features, will exert a very strong influence on the laboring man in the future.

In concluding, I desire to raise my voice against the all too common practice among mill men to combine mentally, and as frequently by expressed thoughts, the work I have outlined in the foregoing article under the general title of "Welfare Work." Welfare work predisposes the giving of some more or less valuable perquisite that will aid in contributing toward the welfare of the persons to whom given. On the other hand, during the many years that this so-called welfare work has been in progress, it has come to have a more local meaning that would tend to the belief that such offerings were made because of charity. This is the particular feature that I desire to emphasize. Work of the character described in the foregoing article is not charity in any sense of the word—it is good business because it tends to uplift the standard of health throughout the entire village, thereby increasing the ability of the larger operatives to work more advantageously for the company, while increasing the physical capacity of the younger children to absorb the most knowledge from the good schools which are always provided. I shall set no specific title by which such work may be called, but I do believe that any work of this character which tends to the upbuilding of the community morale should not be classified within the narrow limits of that now so common term "Welfare Work." The word "community" is coming to have a richer and fuller meaning in the present era, and for this work, which has such a bearing in developing a better community, mentally, morally and physically through the completion of structural improvements, I would suggest the name "Community Work."

The Youngstown Sheet & Tube Company's annual calendar for 1919 is out, and is, perhaps, the handsomest of the interesting series issued by that company. It contains twelve new views 8 x 15 inches, in two colors, each showing one of the spectacular operations in a modern steel mill. The illustration on the front page is a night view of the main plant while it was speeded up on war work and flood-lighted as a war time precaution. This remarkable picture was made from a photographic plate which had been exposed two hours and is regarded as a triumph of night photography.

The calendar will be sent to any address on receipt of four cents in stamps to pay expense of mailing. Requests for it should be addressed to the Publicity Department, Youngstown Sheet & Tube Company, Youngstown, O.

The Cement Products Company, of Wilmington, N. C., announce that effective January 1st, 1919, J. B. Shatzer will assume control of their sales department as sales manager. They further announce that upon that same date their former sales manager, C. E. McKee, will cease to represent that company in any capacity.

The Detroit Graphite Company, paint and color makers, with headquarters at Detroit, Michigan, are sending out a large panel wall calender, bearing a reproduction of the well known oil painting by Philip R. Goodwin, entitled "A Successful Call." A copy of this calender will be sent gratis to any mill man applying.

GENERAL VIEW OF CAFETERIA AT THE CALIFORNIA COTTON MILLS, OAKLAND, CAL. NOTE THE PLEASANT SURROUNDINGS.

Among the minor conveniences that have been added to the equipment of many mills during the strenuous period of the war, perhaps none has attracted so little general attention and at the same time has given so great an amount of creature comfort as the mill lunch-room. From the East to the far West and alike in the North and the South, occasional lunch-rooms have been launched, under a variety of auspices, but all with the same general end in view—the improvement of the general morale of the mill's working force.

A variety of illustrations might have been secured to illustrate the points brought out in this short article but lacking the space necessary to present so many features of great similarity in one issue, the photographs for the illustrations of this article were taken in the new cafeteria at the California Cotton Mills Company at Oakland, California.

In this cafeteria, about 250 people are fed daily and the management reports that the service is becoming more popular all the time. In this clean, well-fitted room may be seen the tables and the service counter, while just back of the service counter is the kitchen from which the supplies are drawn. The kitchen is in charge of a woman who formerly conducted a restaurant, who is an excellent cook and thoroughly understands her work.

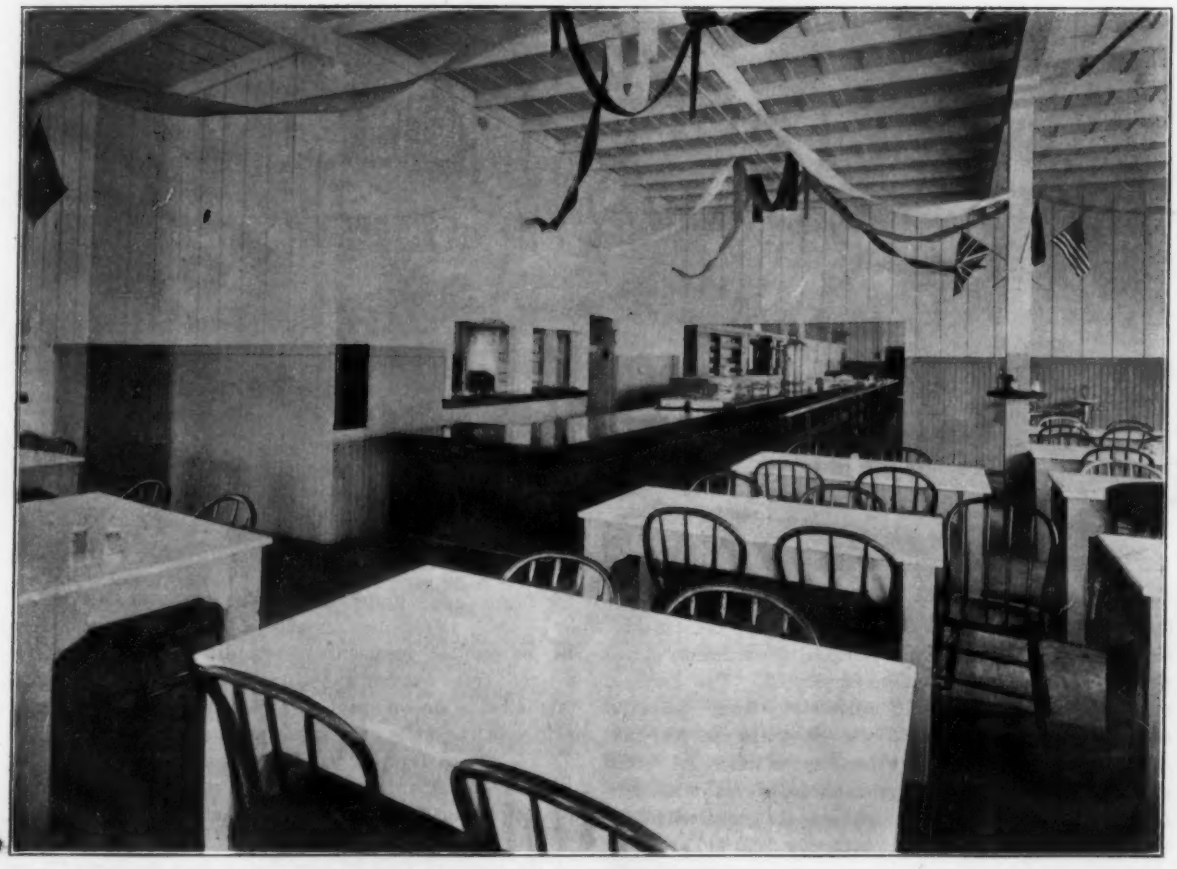
As will be noted from the maple trees seen through the open windows, the cafeteria is right adjoining the mill's recreation park, and the surroundings are pretty and cheerful.

This cafeteria is also used on occasion for social gatherings. The tables may be removed and the floor used for dancing, while a small platform for musicians is permanently located in one corner of the room. This particular mill also utilizes the lunch-room as a meeting hall on one night each week, usually on Thursday, when a talk is given by some good speaker on an interesting and instructive topic.

Following are two sample menu cards, showing details and prices on the particular dates named:

BILL OF FARE OCT. 10TH, 1918.

Rice Soup	.05
Roast Beef	.10
Beef Stew	.10
Beef Hash	.10
Baked Beans	.05
Beans (Spanish)	.05
Mashed Potato	.05
Salad, Potato	.05
Salad, Macaroni	.05
Rice Pudding	.05
Sago Pudding	.05
Bread Pudding	.05
Ginger Bread with frosting	.05
Coffee or Tea	.02
Butter	.01
Bread	.01
Milk	.05 and .08



ANOTHER VIEW OF THE CALIFORNIA COTTON MILLS CAFETERIA, SHOWING THE SERVICE COUNTER AND THE KITCHEN ENTRANCES.

BILL OF FARE OCT. 4TH, 1918.

Baked Salmon	.10
Clam Chowder	.05
Macaroni Soup	.05
Corned Beef and Cabbage	.10
Boiled Beef (Spanish)	.10
Baked Beans	.10
Spaghetti	.10
Mashed Potato	.05
Pickled Beets	.05
Creamed Carrots	.05
Salad (Potato)	.05
Salad (Macaroni)	.05
Apple Pie (War Style)	.05
Apple Cobbler	.05
Baked Apples	.05
Coffee or Tea	.02
Butter	.01
Bread	.01
Milk	.05 and .08

Among other lunch rooms of a similar character, there was one recently visited that had a rather unique and outstanding feature. This was at the lunch room at the Anchor Duck Mills, at Rome, Georgia. This is an entirely new proposition with the Anchor Duck people and has, up to the present, been extended only to the lunch counter stage, however, a most unique feature of their kitchen equipment was a large electric range, upon which all cooking for the entire lunch-room is done. This lunch-room, which is in charge of Miss Lulu Stoffregen, is also becoming more popular with each week of its existence and arrangements will have to be made in the near future to extend its facilities and seating capacity.

Mills that have made similar installations during the past two years will confer a favor upon the Editorial Department of COTTON if they will write us in more or less complete detail of the success they have attained with these lunch-rooms, furnishing, where possible, suitable photographs.

It has been announced that the Government has removed all restrictions on the use of steel sash, wire glass, steel partitions and doors, sprinkler and heating systems, and other forms of steel products in investment buildings.

These buildings have been classed as non-essential since this country entered the war. The ban now lifted includes also industrial buildings, steel for which was restricted for a few weeks in October. It is now permissible to use steel products in practically all classes of buildings.

The Morse Chain Company, with general office and works at Ithaca, N. Y., are sending a holiday souvenir to the trade in the form of a leather covered vest pocket diary for 1919. A copy no doubt may be secured up application.

INDUSTRIAL HOUSING

by H. B. Wright, Engineer*

The war has awakened us in many ways, and has for the first time in the history of our country, prompted consideration, on the part of our National Government, of the proper housing of its citizen-employees. The example of the Government is being followed by large industrial concerns throughout the land who recognize the fact that labor is the outstanding problem in the industrial world today, and that if their business is to be conducted economically, in the face of competition, they must eliminate the expense of excessive labor turn-over. To hold the best class of steady employees they must provide adequate housing for them.

Clean, sanitary, attractive dwellings with modern conveniences and comforts, arranged in attractive groups, and in a well-kept residence district close to the factory in which they are employed, is a paying investment from the standpoint of labor protection. The home-loving man is almost always a good workman, and a good workman, well housed is a steady, conscientious employee and a good citizen.

Considered from a strictly financial point of view, proper housing is a good investment. Construction should, above all things, be durable and permanent, that workmen, who invest their earnings in a home may have assurances of adequate value for their money.

The type of construction selected should be sanitary, fire-resisting and repair-free. It should be susceptible to a varied architectural treatment, and of such construction that group harmony and individual attractiveness may be readily secured at a minimum cost.

The selection is confined to the commonly known types of building materials, brick, frame and stucco. Brick dwellings are comparatively expensive, except in brick districts. The frame construction is the type which has been generally used, in industrial operations. Frame buildings are, however, unsatisfactory in many ways and expensive to maintain. They are combustible and cannot be built in any congested city districts. Their use in isolated factory districts, necessitates a good deal of expense for adequate fire protection. Frame houses are very likely to be costly to maintain, expensive to heat, and unsanitary. Unless painted frequently they deteriorate and suffer severely from weather and disturb the beauty and harmony of the entire development. Vermin of all kinds find ready refuge in the walls of a frame structure.

The stucco type of building possesses many points of advantage that are well worthy of consideration by those contemplating industrial development. Stucco has been used in all countries for many years, and has been adopted as the standard type of construction in a number of large developments.

Stucco buildings are economical, sanitary, repair-free, fire-resisting, low in upkeep cost and are susceptible to a varied architectural treatment not possible with any other type of construction.

With cement plaster on metal lath these advantages are possible, at an initial cost, approximating that of good frame construction, and the after costs are negligible. The materials are readily obtainable in all localities and no exceptional skill required for their successful construction.

A suggested type of construction is to use a wood frame skeleton, similar to that used in all frame buildings. Wood studs are erected on 16" centers. On the exterior face of these studs a metal furring strip is placed over which metal lath is securely attached to the studs by iron staples. Three coats of cement plaster are then applied to the outer face and one coat to the inner side between the supporting studs, forming a wall about one and three quarter inches in thickness and uniform throughout the entire wall.

With this type of construction, sheathing boards are eliminated entirely without in the least impairing the comfort or stability of the building and greatly reducing the cost of erection.

An alternate method is to eliminate the metal furring strips entirely and attach the metal lath directly to the studs by staples. This method is more economical but does not allow complete protection of the lath over the face of the stud by cement mortar.

(*Continued on page* 167.)

*The General Fireproofing Co. Youngstown, Ohio.

Peace and Industrial Expansion

by Col. Robt. J. Lowry
President of The Lowry National Bank,
Atlanta, Georgia

The smoke of battle has cleared; the armistice has been signed; the struggle with autocracy has ended; and our great country now faces the sterner problems incident to the establishment of a permanent world peace and the maintenance of stable internal relations. The distinguished personnel of the Peace Congress representing the United States may be trusted implicity I am sure to settle the first of these problems, backed by the united support of a people who are quite as patient as they are patriotic, and who have proven themselves to be equal to the emergency thrust upon the Nation by the world conflict. I feel quite sure that the people of this great country have felt content to trust the diplomatic problems of the Peace Congress to the hands of our able President and his associates, who have so successfully conducted our martial operations during the war. During the time that our country was making the effort to remain a neutral, and also during the time that we were actively engaged in the conflict as a co-beligerent, our President has promulgated the high ideals of freedom, fair play, and self-determination, for which our country stands and actuated by these same high ideals in the Peace Congress, we may confidently expect the world peace problems to be settled upon the broad altruistic and humanitarian principles of justice to all. It is indeed gratifying that the President saw fit to brave precedent's bars, and put his foot upon foreign soil to carry American ideals in person to the peace table. It seems that the best thought and heart of our nation could not do otherwise than approve this step upon the part of the Chief Executive, and to back him up with the morale and spirit of a free people, who believe in freedom and justice, and who have sought to teach autocracy the lesson that might does not make right.

So it would seem that we of the United States can now turn the attention of our thinking men to the problems which confront us at home, and some of the issues which must grow out of the process of reconstruction and rehabilitation. During the war, labor of all kinds has been greatly in demand and at high wages. These high wages have been due to two causes, first, the high cost of living, and, second, the demand for the labor. In the process of readjustment wages must, of course, be revised to meet the changed conditions which peace rather than war will bring about in the country. The Government being no longer in the market for war production will naturally cut off as much labor as possible, and the demand for this labor by private corporations and individuals will be regulated by the demands of peaceful pursuits. This perhaps will have a tendency to revise downward the wage scale. This being true, there must necessarily be a revision downward of the cost of living, because wages must keep pace with the living expenses, and with the other costs in production and doing business.

To bring about such a revision and readjustment is an internal problem requiring the co-operation and thought and effort of all classes of our people with an eye single to the best interests of the country as a whole. In large measure our people must lose sight of individual interest, and pool their efforts along lines of community interest and welfare, and the common good. Employers and employees must meet each other in a friendly atmosphere of mutual consideration and avoid the dangers incident to a mutual feeling of distrust and suspicion. Where any injustice is apparent, or after due consideration and discussion is recognized, there should be a co-operative spirit manifested on both sides to remove the evil. There can not be an injustice on the part of either side without inviting a spirit of revolution and resentment akin to the Bolshevik of Europe, who blindly fight the powers that be with the fancy that they are down-trodden and abused, without being able to definitely define their grievance. Employers in this great country of ours should promptly recognize that unrest may be caused by their lack of appreciation of the wage-earners' viewpoint, and that in the readjustment of wage scales there must be a due consideration of that viewpoint and an improvement in their industrial relationship to their employees. Wage-earners, on the other hand, must realize that there is naught to be gained by anarchistic and Bolshevik outbreaks of passion and prejudice, which in many cases is the outbreak of a disgruntled few, who deserve and should receive disciplinary restraint in the interest of all the wage-earners of the country.

While capital must consider the needs of labor, and the

demands of modern living conditions, labor should also appreciate the fact that better living conditions will add responsibilities, of which it has heretofore been relieved. Independence carries with it responsibilities and to discharge the responsibilities devolving mutually upon them in the future there must be the closest cooperation and mutual sympathy. The one keynote in wage readjustment is that harmony and a spirit of friendly cooperation must prevail; otherwise we invite revolution and reaction of a dangerous nature, and we will get nowhere. Industrial leaders and heads of labor departments and bureaus have this problem of readjustment in their hands, and the waiting public has the utmost confidence that they will meet responsibility with the characteristic American spirit of fair play.

From the financial viewpoint, I view the return of the country to a peace basis with optimism, though we must exercise conservatism and be cautious, that we may avoid the danger of too rapid industrial expansion, which is quite as dangerous as industrial stagnation. The demand abroad for all kinds of materials for reconstructing the war-devastated areas of Europe will tax going concerns in this country to such an extent as to offer an inviting field for the inauguration of new industrial enterprises. All well and good that expansion of this character should go on within reasonable bounds, but a too great stretch of credit to make a permanent investment, to meet what might be to some extent a temporarily inflated demand, might be the means of involving many individuals as well as financial institutions in loss. With due caution and conservatism, reasonable expansion commensurate with what is known to be, or reasonably expected to be a permanent demand, will result in a healthy growth of industry in this country, and can certainly be considered safe from a financial viewpoint. I would therefore be disposed to encourage a reasonable amount of expansion in the way of the erection of new plants, the installation of new machinery, and the enlargement of present output capacity. I think emergency conditions might be thereby met with reasonable promptness, and an outlet assured for the continuous operation of added equipment in the years to come.

The return to civil life of our drafted soldiers will not only require reasonable industrial expansion to insure their employment, but the demand abroad will at least for several years to come justify sufficient expansion to take care of them. If the question of wage scale adjustment is satisfactorily solved (and it must be solved as a prerequisite to healthful industrial expansion) there is no doubt but that civil pursuits will very readily assimilate the soldier population now coming out of the cantonments and abroad into peaceful lines of endeavor. There is naught to be apprehended in my opinion from expanding industrially to take care of this influx of physically fit labor. Many of the places, which were taken by women during the war, will no doubt continue to be occupied by women, and thus the new openings for labor through reasonable industrial expansion will in large measure take care of our soldier boys who will re-enter civil life.

There must also be provision made for the increase of labor in this country through immigration, which might reasonably be expected to increase rapidly for a few years at least, due to the uncomfortable conditions surrounding a continued residence in Europe. Many of these immigrants are experienced and expert mechanics, agriculturalists and laborers, and through industrial expansion could be readily assimilated. There is work in this great and growing country for everybody, and the day of the idler and the tramp has passed. Everybody has speeded up since our entrance into the war, and on account of the needs of Europe we not only can not slacken our pace, but we must expand our operations within safe and conservative limitations, and take care of the additional labor which the cessation of war and war industries will direct into peaceful channels. Our only hope and injunction is that this expansion be not overdone, so that, when emergency orders cease to come from across the water, depression and bankruptcy might not overtake the too sanguine, and financial institutions which have backed such enterprises suffer a shock, if not great loss.

In the adjustment of the wage scale, if revision is downward, necessarily sooner or later prices of commodities must be readjusted, but prices will no doubt prevail high for some time on account of the demand abroad. One of the surest ways to bring prices down to a normal level is through reasonable industrial expansion, and if a readjustment downward comes through such an agency, the readjustment will be brought about without any shock to financial conditions, for it will have occurred through the normal channel and over a sufficient length of time to avoid disastrous shock.

It is with a sincere feeling of regret, as well as of personal loss, that we have to close this article with the announcement of the sudden death of Col. Lowry on January 8th from pneumonia. Having arrived at the ripe old age of 78 years, this able head of one of the oldest financial institutions in the South, shifts the burden of his duties to his associates and passes to return no more. Born in eastern Tennessee, a Republican by politics, he progressed in Atlanta's banking circles to the point where he was selected as President of the American Bankers Association. Physically an imposing specimen of manhood, his heart was as tender as his body was large and with his rugged honesty typified the man.—The Editor.

Steps taken by the Department of Agriculture to secure the proper utilization of low-grade cotton, particularly through a modification of government contracts, are told of in the annual report of the Secretary of Agriculture.

"It has been very difficult," says the report, "to obtain correct commercial differences for cotton during the past season owing to the great demand for the high grades and the falling off of that for the low grades. To add to the difficulty, the latter became concentrated at a limited number of designated spot markets. These markets endeavored to submit correct quotations for them, while other markets were at a loss as to how to arrive at correct differences. This caused some markets to quote the very low grades at a much wider discount than others. The apparent result was that the average differences for these grades were comparatively so narrow as to make their delivery on future contracts very profitable. A further result was that the parity between spot cotton and future cotton was greatly disturbed, future contracts depreciating in value on account of the comparatively high prices at which the low-grade cotton was delivered on future contracts."

INTERIOR OF A Mill Village Laundry

INTERIOR OF ELM CITY LAUNDRY AT THE ELM CITY COTTON MILLS, LAGRANGE, GA.

The conditions which have pertained in many industries during the war and which will undoubtedly continue to confront manufacturers during the reconstruction period after the war, have assumed such proportions in many industries that they not only demand immediate attention but such careful consideration as will afford immediate relief, and paramount above all other is the question of an adequate and steady supply of satisfied labor.

In the textile industry, due to the fact that the manufactured product has been in greater demand than ever before, it has been absolutely necessary that the maximum output of the mills be realized, and to accomplish this, a full working force must be assured at all times. Although the war is over, the demand for the product of the textile mills will undoubtedly be as great as ever, owing to the widespread domestic and foreign civilian demand.

Because in many instances the mills are located in small communities, where the mill workers constitute a large proportion of the population, and because, in the majority of cases, the entire family is employed in the mill, some of the home problems are difficult to solve.

One of these problems is that of handling the family washing. In mill towns of this class, it is next to impossible to employ a wash-woman and it, therefore, behooves one or more of the female members of the family to lay off from work to attend to this duty. Many of the mills have been handicapped on this one account alone, by a shortage of labor on certain days of the week. After carefully considering the question, a number of textile mills have decided to install a complete laundry equipment to take care of the family washing of all of their employees.

At South-west LaGrange, Ga., there are located five mills—Elm City, Hillside, Unity Spinning, Unity and Valley Waste. The officials of the Elm City Mill took this matter in hand and have established a laundry in a separate building, known as the Elm City Laundry. A complete equipment of modern laundry machinery has been installed, consisting of

3—Washers.
2—Centrifugal Extractors.
1—Truck Dry Room.
2—Drying Tumblers.
1—Marking Machine.
1—Universal Press.
1—6-roll Flat Work Ironer.

The equipment was purchased from and installed by The American Laundry Machinery Co., Cincinnati, Ohio, who has made a deep study of the requirements in Mill Village laundries.

A competent laundry superintendent was employed to take charge of the plant and educate the employees in the operation of the various machines. In addition to the laundry superintendent, this plant employs three markers

and assorters, two delivery men who operate an automobile truck for collection and delivery of the work, one wash-man and helper, and seven negro women. The people employed in the laundry are paid a bonus of 20 per cent if they put in a full week's work; if any time is lost, a 10 per cent bonus is paid them. This includes the manager of the plant. They handle the entire family wash on the rough dry plan at 5 cents a pound. The flat work, or bed and table linen, is ironed and the wearing apparel is starched and dried ready for ironing. Blankets, bath towels, underwear, stockings, socks, etc., are dried in the drying tumbler and are ready to be used without any further finishing.

The mill furnishes the steam, water and power for operating the plant and the building in which the laundry is located, it being the intention to charge the laundry the actual cost of these items.

The record of the first five weeks of operating this plant is interesting, as it shows a gradual increase of the number of washings received. The first week the plant was in actual operation they handled washings for 134 families; the second week this increased to 199 families; third week, 235 families; fourth week, 257 families; and fifth week, 295 families. There is every reason to believe that this work will continue to increase right along, for at the time these figures were compiled, they were only handling the washings of fifty per cent of the families at the Elm City Mill, fifteen per cent at the Hillside Mill, fifteen per cent at the Spinning Mill and ten per cent at each of the Unity and Valley Mills.

It is not the intention of the mill to make any money out of the operation of the plant, but to operate it at cost and give the employees the benefit of the lowest possible charge for modern sanitary work. No cash is handled by the laundry plant. A record of the bundles handled is sent to the mill in which the customers are located and the amount of the washing is deducted from the pay envelope at the end of the week. There is no necessity of the laundry employing any office force whatever.

At another mill in the south, they have carried this work a little further and instead of simply starching and drying the wearing apparel, they finish the entire washing —starching and ironing all pieces. Their basis of charge is 5c per pound for rough dry and where the bundles are finished completely, the following table of prices is issued:

Not over 5 lbs.	.50	per week
From 5 lbs. not over 10 lbs.	.85	" "
From 10 lbs. not over 15 lbs.	$1.35	" "
From 15 lbs. not over 20 lbs.	1.80	" "
From 20 lbs. not over 25 lbs.	2.25	" "
From 25 lbs. not over 30 lbs.	2.70	" "
From 30 lbs. not over 35 lbs.	3.15	" "
From 35 lbs. not over 40 lbs.	3.60	" "
From 40 lbs. not over 45 lbs.	4.05	" "
From 45 lbs. not over 50 lbs.	4.50	" "

This takes the labor of ironing the wearing apparel off of the mill employees. At the present time this particular laundry is handling from 140 to 150 washings per week, total weight of washing running from 1500 to 1800 lbs. of which only about 1% is handled as rough dry, the balance being finished work. One man is kept busy calling for and delivering the work in the village, using a push cart for that purpose. This latter laundry employs eleven people, including a forelady, one wash man who also attends to the boiler, and a delivery man. Here, too, no cash is handled by the laundry. A voucher is made out for the amount of the laundry charge and is turned over to the mill cashier, who in turn deducts this amount from the weekly wage of the employees.

The operation of these Mill Village laundries has undoubtedly proven of benefit to the mills, as the reports received from the managers show that they do not have nearly so many absentees as they did before the laundries were installed.

While the owners of these mills, in a sense have a selfish purpose in view, in that their object in operating the laundry is to keep the mill hands at work, still it is not their desire that the laundry shall be operated with profit. A strict account of the whole operation is kept. The laundry is charged for rent, fuel, light, water, etc. The labor and laundry supplies expenditures is likewise charged in this account.

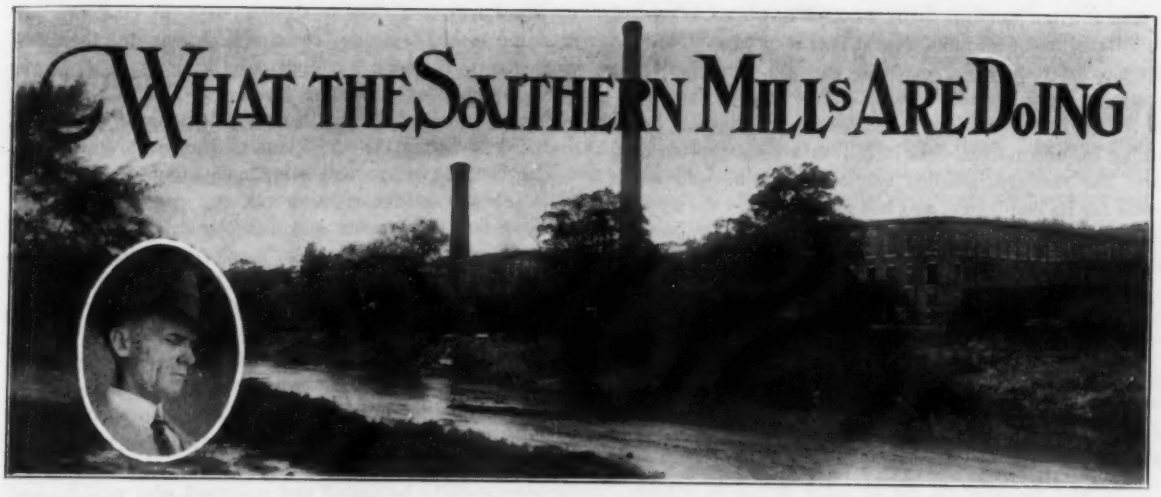
It is undoubtedly true that these laundries will not only relieve the mill employees from the drudgery of handling the washing in the home, but will have the effect of showing the employees that their employers have their welfare in mind at all times.

There is no question as to the success of this enterprise in the mills where laundries have been installed. The results are extremely satisfying to the owners and, in most instances, the laundries are operated at cost, without any loss to the owners. Undoubtedly there are many mills throughout the country where the owners realize that steps must be taken to overcome the annoyance and inconvenience of having their employees lay off and do the family wash. A card sent to the Editorial Department of COTTON will serve to bring you further facts about your individual problems.

Numerous processes have been proposed for bleaching with the aid of sodium peroxyd, but as a first condition in all the wool must be perfectly clean, washed and freed from all fatty matter before bleaching. A recommendable process for 100 pounds of wool is as follows. The bath is made up with:

1000 pounds hot water
3.6 pounds sulfuric acid
3.0 pounds ammonium phosphate
3.2 pounds sodium peroxyd.

The degree of alkalinity is an important factor of success. In most cases the bath must be varied to suit the material to be bleached. If a bath prepared with the above formula appears to be too strongly alkaline, it can be remedied by adding a small quantity of phosphoric acid, using litmus paper as an indicator. If it becomes feebly bluish the bath has the proper alkaline condition. Sometimes it happens in about an hour after beginning the operation that the acidity of the wool neutralizes the alkali. In this case a little ammonia restores the proper condition. After preparation the bath must be allowed to stand for twenty minutes, and the foam which forms on the surface must be skimmed off before entering the yarn or goods in the bath.



SUPERINTENDENT C. P. THOMPSON, AND THE MILLS OF THE TRION COMPANY, AT TRION, GEORGIA.

The fourth of a series of industrial reports recently issued by the office of Commissioner of labor and printing, M. L. Shipman, of North Carolina, shows that the Great North State is standing shoulder to shoulder with her sister states in the southeastern section in its rapidly growing industrial division devoted to cottin manufactures. The figures given by Mr. Shipman's report show that the capital stock of cotton mills in North Carolina has trebled during the past eighteen years while other features pertaining to the industry have shown a similar growth or improvement.

A modern cotton mill to cost around $200,000 is soon to be erected at the Textile Industrial Institute at Spartanburg, South Carolina. This school is operated by the Rev. D. E. Camak on the part-time plan and has in the past received very active support from the cotton mills of Spartanburg County. The mills of this county have been asked to contribute $50,000 toward the new plant and are said to have already subscribed $37,000 of this amount. This mill will be used in connection with the school.

L. F. Groves & Sons of Gastonia, N. C., were recently reported to have purchased all the holdings of the Dukes in the Groves Mill at Gastonia. No definite information has been given out as to whether this will mean any change in the management.

The Pamlico Cotton Mills Co. of Wilmington, N. C., has been organized with an authorized capital stock of $20,000. J. W. Williamson and others are interested.

The Catawba Cotton Spinning Co., of Mount Holly, N. C., recently incorporated, has acquired the plant and franchises of the Albion Cotton Mills. R. F. Craig is to be president of the company, and George R. Grice, general superintendent.

The numerous changes in the textile industry as a result of peace were responsible for the passing up of the December meeting of the Middle States Textile Manufacturers' Association, which may hold a called meeting later. However, from present indications a meeting will not be held until next spring, although there are several important matters which should be discussed.

The Maysville Cotton Mills, Maysville, Ky., lost approximately $25,000 worth of cotton and machinery, stored in a nearby warehouse, when fire broke out in a coal elevator, and destroyed the warehouse. Seventy-five bales of cotton, and some new machinery had been recently placed in the building.

At Paducah, Ky., the Paducah Hosiery Mills, have recently installed a large dining room in connection with a new club house that has been completed, and now has one of the nicest welfare departments in the state.

Philip S. Tuley, head of the Louisville Cotton Mills, Louisville, Ky., as president of the Kentucky Manufacturers' Association, has started a campaign for the purpose of providing work for disabled soldiers returning to the state. Mr. Tuley has plans for connecting every injured man with a job that will provide him a living, and is lining up the industries which can use such men.

The Kentucky Actuarial Bureau, and some of the state agents for large fire companies, have been making investigations concerning the use of "kapok," a silk tree fibre imported from India, which has been used freely in manufacturing pillows, mattresses, etc., of late. Investigation in Louisville showed that whereas this material has been used, it has been so scarce as to prove unsatisfactory of late.

Mike Beddinger, of the Tell City Woolen Mills, Tell City, Ind., was recently in Louisville in connection with the annual convention of the Ohio Valley Improvement Association, which for twenty-five years has been fighting for locks and dams on the Ohio River, in order to secure a nine foot boating stage. Mr. Beddinger is much interested in better waterways, as it would facilitate getting cotton in by river from Memphis and the South for his jeans factory, and aid in shipping considerable tonnage of manufactured product. The association had been considering plans for asking for a federal barge line for the Ohio, but closed with resolutions calling on Congress to speed up river improvement first, as the barge line would be of little if any assistance without an all year stage.

A recent report from Lexington, Ky., was to the effect that the Phoenix Woolen Mills are out of business. This concern formerly operated a small plant, having two sets of cards, and ten sets of looms, manufacturing yarns, blankets and jeans.

The Puritan Cordage Mills, Louisville, while having lost some Government business, report that they have more than two months commercial business on sash cord, and four months or more business for rope. The company's war orders were just about completed when cancellations began coming in, and no real loss is felt as a result. This company has recently installed two new dressing and locker rooms for its employees, and has also taken on the Prudential group insurance for its employees, every employee being given a $500 life policy while in the company's employ.

Thomas Tuley, as an associate member of the West Section Underwear & Hosiery Mfg'rs Association, was in Chicago on December 12, representing the Louisville Cotton Mills. A few days prior he made a trip North, going as far East as Cleveland, and reported that he found most of the textile mills very quiet as a result of loss of Government business, which has temporarily paralyzed some concerns. He called on about thirty-five concerns while visiting the North. His own concern has about 8,000 pounds of sub contract Government yarn on hand, and has held up manufacture on about 200,000 pounds.

A number of concerns located in the Ohio Valley which had subcontracts are apparently of the opinion that they will make the best of things, and not try to hold the contracts, as they are not anxious to make it harder for the fellows who made the original contracts with the Government. Discussion of this matter with several manufacturers of the district has brought about the same ideas on the subject.

Textile mills that can beat a rating of eighty-five per cent in connection with rated steam plant efficiency will have Manager J. G. Ellis, of the Louisville Woolen Mills beat. Mr. Ellis has a fairly new plant, well equipped, and well kept up. His Fuel Administration questionnaire after being investigated entitled him to an 85 per cent rating, which is very high.

The general labor situation in Louisville has eased up materially as a result of the return of thousands of men from military pursuits, through the mustering out process, and the fact that industrial demands are much weaker as a result of lost war orders. Today textile mills are managing to get all the help, and good help that they want, but are maintaining the same schedule of wages, and plan to try to hold wages for the time being at least. It is felt that if better wages are paid in the future than those before the war the textile industry will be on a much sounder basis.

The evidence in the case of the Abingdon Mills, at Huntsville, Ala., recently declared bankrupt, has caused Judge Henry D. Clayton to appoint Lawrence Cooper as trustee for the concern and has ordered that the property be sold by the stockholders with Cooper & Cooper, and David A. Grayson, attorneys for the trustee. The assets of the Company were $800,000 while the liabilities were $1,300,000.

The Oakland Cotton Mill, at Newberry, S. C., is repainting its entire mill village, inside and outside.

The Mobile (Ala.) Cotton Mills, have been purchased by the Meritas Mills, 320 Broadway, New York, N. Y. The product of the Mobile plant will be transferred to the Meritas plant at Columbus, Ga., in order to furnish a larger quota of yarns at that plant.

The Loray and Osceola Cotton Mills, of Gastonia, are planning to build at once community houses for their employees. C. C. Hook, architect, of Charlotte, is now preparing plans for these two buildings. While these two buildings will be different in size and design, they will be designed to better the conditions of the employees of the mills. Both buildings will contain medium sized assembly halls, shower bathrooms day nursery rooms, rooms for teaching domestic science and domestic art, reading rooms, and well-equipped kitchens and lunch rooms where employees may procure warm food. The buildings will be two-stories in height, and the designs will be attractive, adding to the village's architectural attractiveness.

The Loray Mills will also build a large boarding house for the accommodation of employees without homes. The plans for this building, which have just been completed by Mr. Hook, show a very attractive building containing 20 rooms, also baths, dining room, kitchen, etc. All of the buildings are to be heated and equipped with modern sanitary plumbing and electric lights.

New England Mill Situation.

It has been a strenuous month among cotton goods manufacturers on account of the sudden termination of war contracts and the uncertainties attending adjustment of business that had to be cancelled. At this moment the worst of the strain is over and manufacturers are feeling much more confident of the future. There has been no time when they have not believed that after-war business would be large and profitable, due to the probable foreign demand and the need for filling up the denuded stocks at home.

The Government has announced its policies of allowances for goods and yarns on hand and this has met with approval. In fact the mill men were consulted before the Purchase and Traffic department issued its order defining the limits within which piece goods and cotton yarn contracts would be terminated. The adjustment of war business is still going on and many mills are approaching the moment when they will be open for future business.

The decline in prices in the markets was not as precipitate nor so general as some traders were predicting. At the same time values have shrunk materially and it is not yet clear to what extent mills can stand aside until reconstruction actually begins. Print cloths fell to 11½ cents from the Government maximum of 15½ cents under the price fixing regime, and this represents the extreme of a decline from 83 cents to 62 cents a pound. Finished goods prices were not allowed to decline, first because many selling agents stated that no new spring prices would be made and again because agents stated that old prices would be continued without change.

No one cared to buy and under the circumstances manufacturers did not see that anything would be gained by trying to force new business for the first quarter of the year while they still had business in hand to keep them occupied till January.

The cancellations that came forward were not unexpected. Selling agents and manufacturers made a hard fight against accepting them and the general attitude of the trade became so unanimously against accepting unjust cancellations, whether from retailers, jobbers, or convert-

ers, that the emotional impulse for canceling soon passed away, and other impulses were not permitted to have a controlling influence. If goods were long overdue on delivery cancellations could not be fought in the courts and in some instances they were accepted. At the same time, selling agents moved in harmony to disclose to each other who the parties were who cancelled and when this became known among buyers they were inclined not to press very hard to take action that might place them in the light of not fulfilling their mercantile obligations.

About the middle of the month the New York selling agents were able to arrive at an understanding with the War Department concerning measures to be taken to prevent a flood of merchandise in the markets from Government departments whose war needs were at an end. In substance, the War Department agreed to appoint a Surplus Property division into which will be turned all goods not required. These goods will be sold. The department will be a preferred seller with all Government departments so that if any of the surplus merchandise is wanted, it will be sold from the surplus stock. This will prevent other departments from going into the general markets for merchandise that is similar to stock already held unsold.

Moreover, the selling agents were granted permission to have a representative located in the office of the Surplus property division so that when opportunities to sell come to hand the trade will be at once apprised of the bids and will counsel the department as to the wisdom of accepting them. When bids are received in the trade for the goods, they can also be submitted to the officer. In this way the trade will be kept in touch with the whole movement of the surplus stock.

This arrangement, whereby goods will not be offered in the general markets unknown to the trade, will continue till May 1. In the meantime, it is understood that the Surplus property division will be a preferred seller with all the relief organizations operating in Europe, including any form of relief that may be undertaken by the War Department in devastated countries. This is really one of the most important points in the situation. It seems quite probable that if it is found necessary to extend further credits to Allied peoples and Governments, they can be worked so that goods not used regularly in domestic trade, but very desirable nevertheless, where no cotton goods are available, can be sold profitably abroad. This will soon remove any menace the war surplus may be to the normal recovery of trade here.

Already some large sales of twills, drills, and print cloth yarn goods, some sheetings, some duck, denims and osnaburgs, have been made to commissions engaged in various forms of Eupropean relief, notably in Belgium and Northern France. Preparations are already underway to dispose of stock in Russia under conditions that will show no loss to the Government. These and other facts concerning the probable disposition of Government surplus merchandise have led to a broader confidence among manufacturers than they were expressing only a week or two ago.

The probable course of cotton markets has caused a great deal of talk among the mill men. It is recognized that the whole story of cotton in war time has been a story of demand and not statistics. At this time it seems as if there is going to be an enhanced demand. Certainly, if cotton can hold strong in December when exports are limited, they think it should be no weaker after shipping is provided and after peace conferences are underway. The need for cotton abroad was never greater and the supply in sight for the next nine months is certainly not sufficient to be a continued bearish influence.

In a few instances mills have accepted business for next year. Some of the wide dress gingham mills that supply the manufacturing trades have accepted orders and selections, the price to be contingent on developments later on. The same thing is true in a lesser degree of some of the fine and fancy shirtings that must be put in the looms soon if they are to be ready for the fall trade.

A very prevalent view among manufacturers at this time is that it will be necessary for mills to shrink a substantial part of their wide profit margin in order to revise prices for selling agents, when the time comes for them to make concessions to obtain business. When that time will be there is very much diversity of opinion. Yet within a week, the feeling has become widely disseminated that recovery in cotton goods is not going to be delayed so long as in some other things, and a common reason assigned for this view is the belief that with the Government surplus out of the way there is no other surplus of goods that needs to cause trouble.

The bleacheries and finishing works have naturally felt the full force of the sudden termination of Government business. Many of them were engaged to 80 per cent of their capacity on Government business. There is nothing in sight to take the place of it as converters are uncertain and do not want to make committments until they can foresee how far a price revision will go. Some of the bleacheries are now running less than half their machinery. Some finishing plants are running half and will take advantage of the Christmas holiday to make much needed repairs.

The labor situation is clearing up. Operatives are not pressing for higher wages. Some few mills have shut down and there is a surplus of operatives coming into sight, as compared with the light supplies of war time. This means a radical improvement in the temper of operatives at least and the result is that those who have work are glad to stay at it.

A number of minor things have already happened to clear away difficulties that were constantly talked of a month ago. There is plenty of fuel in sight for the mills. The stopping of war work and the increased facilities for transporation have wiped out that trobule. Some of the supply shops are now finding it possible to begin to consider orders they were declining a month ago so that the acute shortage of some supplies and the high prices of others will gradually pass away.

In the mercantile community there is a great deal of anxiety expressed as to the values that should be placed upon merchandise in hand, in view of the drop in prices and the imminence of heavy Government taxation. In manufacturing circles a similar problem presents itself and if the low prices quoted in the markets for print cloths are to be taken as a basis of value, the taxation will be lighter than was anticipated.

There is much less apprehension about a revival of business among colored goods mills than there is among gray goods and yarn mills. The colored goods mills have orders in hand while many of the gray mills will be without orders in another few weeks. The yarn mills will need business in a large way by February.

In mill machinery circles the month has witnessed a great change. Some of the large concerns have sent men abroad to take up the question with foreign manufacturers of supplying machinery for reconstruction. Instead of a dearth of labor a surplus is now available in many shops and for the first time in months every mill machinery shop has a long waiting list of mechanics. There has as yet been no drop in machine shop wages but the abnormal wage period is over with and gradual reductions are certain. They will be accepted in most instances as many workers have felt that they were working under bonus conditions due to war and will not press the point of disputing to a place where being out of work will become an alternative.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, December 17th, 1918.

The adjustment of general trade conditions, changed from a war to a peace basis, is gradually being arranged without any further unfavorable effect on the market.

In fact business is slowly assuming normal conditions. All restrictions have been removed by the government as regards trading, and restrictions by the government against exports to the Allied countries have been rescinded, and are being modified as concerns shipping to neutral nations, but the blockade against enemy countries will likely be continued until peace is signed.

In its annual report, issued December 11th, the government estimates this year's cotton crop at 11,700,000 bales of 500 pounds gross weight, which, when reduced to commercial weights of 515 pounds, points to a total of only 11,350,000 bales exclusive of linters.

Compared with last year's yield the government estimate by states is as follows: Virginia, 26,000 vs. 18,777; North Carolina, 870,000 vs. 617,989; South Carolina, 1,500,000 vs. 1,236,871; Georgia, 2,100,000 vs. 1,883,911; Florida, 25,000 vs. 37,858; Alabama, 820,000 vs. 517,890; Mississippi, 1,210,000 vs. 905,554; Louisiana, 525,000 vs. 638,729; Texas, 2,580,000 vs. 3,125,378; Arkansas, 935,000 vs. 973,752; Tennessee, 330,000 vs. 240,525; Missouri, 70,000 vs. 60,831; Oklahoma, 550,000 vs. 959,081; California, 100,000 vs. 57,826; Arizona, 51,000 vs. 21,737; all other states 8,000 vs. 5,666 total, 11,700,000 vs. 11,302,375.

The large producing state—Texas, shows the greatest loss. It is Texas that England depends upon mostly to obtain its supply. The little improvement in the demand noted of late is reflected in the tendency of the market to advance. In the future the demand will probably become more general, as preparations are reported under way to ship a large quantity of cotton to Spain. Other of the foreign countries will likely be in the market for the staple in large quantities, notably France, Italy and Japan.

Last week the War Department released 100 ships for commercial purposes, a considerable number of which will be assigned to the cotton trade. This is viewed in shipping circles as one of the most important readjustment announcements made since the signing of the armistice.

The consumption of cotton in the United States for the month of November was 457,000 bales against 440,000 in October and 590,000 in November of one year ago, and while it was much smaller than for the corresponding month last year, it is noted that it was slightly larger than for October, which would seem to indicate that it is on the increase again.

Compared with last year mill stocks in the United States at the close of November were 1,670,000 bales vs. 1,406,000 last year, and stocks in public storage in the United States at close of last month were 4,476,000 bales vs. 3,763,000, making a total supply in the United States at close of November of 6,147,000 bales against 5,169,000. In other words the visible and invisible supply in the United States at the close of November was about 1,000,000 bales larger than on the corresponding date one year ago, which is not large considering the great scarcity of raw cotton goods in Europe, and the uncertainty attending the making of another crop next year.

The world will likely be in need of a very large crop for season of 1919-1920, as by that time the large consuming countries of Central Europe will be open to trade.

So far as having a good season in the ground for next crop prospects, Texas is better off now than for the past four years, as the total average rainfall there for October and November amounted to 8.36 inches against 1.42 last year; 3.66 year before last, and 7.24 in 1914.

But there is a 30 per cent increase in the winter wheat acreage in Texas this year, in Oklahoma 10 per cent larger than last year, and owing to the shortage of labor, it is possible that there may not be a large increase in the cotton acreage next spring.

Viewing the market and its future from every angle it would seem as if prices are likely to advance slowly by reason of encouraging prospects for home consumption and an increasing foreign demand.

The Yarn Market.

The yarn market for December is always rather a slow proposition. Not only do the holidays interrupt for a solid week but this is always followed by the New Year's inventory taking and comparatively little business is done during this month even in normal times.

Under the abnormal conditions prevailing during the past month, with a sudden cancellation of all kinds of government contracts, and with comparatively little civilian business booked, the mills are naturally somewhat up in the air on just what they expect to produce, while the buyers on the other hand are sitting tight in the boat in the hope that some mills will be caught long on yarns and have to reduce prices to a bargain day figure.

With the coming of January, and the relief from the government fixed prices on cotton mill products, there will probably be an opening up of the civilian market and a steadying down of the business on the part of the majority of the mills. In the meantime, the export market on yarns continues excellent, and if reasonable labor and shipping conditions may be maintained in this country, the prospects for a continuation of the export trade in yarns seem to be very good.

Lancashire Notes.

BY AN ENGLISH CORRESPONDENT.

When last I wrote, I reported how the strike of operative spinners had been settled, the men having agreed to accept a suggestion made by the Prime Minister that the matters in dispute should be referred to an impartial tribunal. The calm which such a result seemed to promise proved to be an illusion and the sequel of the October "settlement" is that every branch of the trade is now involved in another wages crisis.

The present unsatisfactory position has been brought about in this way. The operative spinners' strike already referred to was undertaken in order to enforce from the Cotton Control Board payment for the time lost owing to the reduction by the Board's order in the number of hours worked. The decision of the Prime Minister's tribunal was given against the men. The tribunal held that for the Board to make payment for work not performed would be a dangerous precedent and that if the spinners were not satisfied with their earnings, the parties to whom they should bring their grievance were the employers and not the Board. To this decision, however, the tribunal made a very important addendum. They held that, in all the circumstances of the time, the spinners had ground for complaint as to the amount of wages that they were receiving, and they recommended that instead of waiting for the current wages agreement to expire in December, the operatives should at once make application to the employers for an advance, and that the employers, notwithstanding the existing agreement, should entertain such a claim.

Naturally the men immediately followed the tribunal's advice. They placed before the employers an application for an advance of 40 per cent on current wages and were joined in this demand by the Card and Blowing Room Operatives' Amalgamation. Present rates are 60 per cent above the rates of 1914. If the operatives' claim were granted it would mean that wages would stand at 131 per cent above list prices. The employers declined to accede to the demand, making an alternative offer of 40 per cent on standard rates, this to come into operation on December 14th. The offer was rejected by the operatives' representatives, who had been instructed to accept nothing less than the full demand, and the unions are now balloting their members on the question of whether they would support their executive councils in any action those bodies might deem necessary in order to enforce the increase claimed. In a joint statement, the executives lay it down that they are "firmly of opinion that in the whole of their experience no application for an advance of wages which has been put forward by the workers has been more justified by the state of trade and other circumstances than the present one."

It is, of course, common knowledge that spinning firms are doing extraordinarily well. Margins have reached a height which before the war no one would have conceived possible. Here are a few statistics extracted from the "Textile Mercury." On January 4th good middling American cotton was quoted at 23.63d., and at 21.26d. on July 26th, while in that period the price of 32s twist had risen from 39d. to over 49d. Raw material had gone down in price, but the finished yarn had taken an opposite turn. The price continued to soar, till in the second week in October yarn had reached over 55d. per pound, compared to the price of cotton at 24.76d. Similar conditions surround the Egyptian trade. For instance, at the commencement of the year, fully good fair Egyptian cotton was quoted on the market at 31.40d. per pound, and towards the middle of October at 29.40d. Against this lower cost the price of 60's twist had risen from 48⅛d. to 71⅛d.

But the application of the spinners and card and blowing room workers is not the whole story. The Northern Counties Textile Trades Federation, which covers all the employees in the manufacturing side of the industry, also "butted in." This body asked for a 50 per cent advance on current wages and also a minimum wage equal to 85 per cent of wages earnable in full time employment. To neither demand would the employers accede. Their reply described the application for 50 per cent on current wages as "most unreasonable and unjustifiable in the present condition of the weaving section of the trade." They expressed themselves as being at a loss to understand why the application was based on current wages instead of on list prices, and pointed to the fact that it has always been the practice for advances and reductions in wages to be based on the lists. As to the minimum wage, the employers' statement summarily dismissed this part of the application as being something on which "there is no likelihood of our being able to come to an arrangement." "We ask you," said the employers, "to moderate your claim considerably, as there is no possibility of our being able to come to an agreement if the application is submitted to our local associations for consideration in its present form." They suggested an adjournment of the discussion, but the reply of the operatives' representatives was that they would take their application to the government arbitrators, the Committee on Production.

The state of trade was summed up by the employers as follows: "Many merchants are already trying to make arangements for the cancelling of cloth contracts, and the prospects of future trade are far from promising. There has recently been a great falling off in the demand for cloth, and while broad looms are fairly well 'booked,' the orders for narrow looms in various districts are very scarce, and there has been little inquiry for the past three or four weeks. The outlook is undoubtedly most disquieting, and many more looms may be stopped in the near future for the want of orders. Many manufacturers have booked orders for cloth for some months ahead, and although they may have anticipated that some further advance in wages might have to be given after December 7th, no such provision has been made in fixing the price for cloth as would anything like cover the advance in wages now asked for."

The minimum wage question has been brought into prominence largely owing to the shortage of yarn, which for months past has been considerable. The shortage means that although weavers and other workpeople have to be in attendance at the mill during the whole of the working hours, they are far from being fully employed, and thus receive reduced wages on pay-day. They claim that, as they have to put in the normal week at the mill, they should be guaranteed something approximating to a normal wage. Hence their claim for a minimum. It is easy to see the point of view of the manufacturer. To him the yarn shortage is a serious handicap in more ways than one.

A little while back, by order of the Contract Board, all looms were stopped for a week, whilst on the other hand all American spindles were allowed to run full time for a similar period. The object of this, of course, was to reduce the shortage of yarn, but though it naturally had some effect, the position has not very materially altered. At the recent census of raw cotton stocks, a census of yarn stocks was for the first time included, firms having to state how much they had on hand and manufacturers how much they had used during the week the census was taken.

Addressing the Lancashire section of the Textile Institute, the chairman of the Cotton Control Board, Sir Herbert Dixon, referred to the Board's future. With the arrival of peace, he said, the Board would become a Board of Reconstruction and would act as advisers to the Government. Its members were not out for heroic or drastic schemes, but would merely be a medium between the trade and the Government in removing difficulties which arose, such, for example, as those connected with the supply of raw material. He thought the cotton trade would continue to hold its own, though after the war it would have to face the prospect of higher wages. Though wages were bound to come down to some extent, they would not fall to the pre-war level. Better housing and education would also have to be provided for the workpeople, who, on the other hand, would have to agree to some relaxation of absurd trade union regulations. He was hoping that the Board would discuss those questions from the point of view of both sides.

Referring to the demand of the operatives for an eight-hour day, Sir Herbert said that he should welcome such a proposal on condition that the League of Nations about which everyone was dreaming would see that what was done in this country was done in other countries as well. "It is," said Sir Herbert, "no use killing the goose that lays the golden eggs. We could give the operatives a six-hour day to-morrow, and within six months we should have no work for anyone because of the enormous increase in the cost of production. If the world believes, as it does, that eight hours is enough for any man to work, let the world support its belief by action through a League of Nations.

A Woman-Writer Investigates.

The Literary Digest for November 23rd reproduced some extracts from an article by a woman-writer in *The Survey*, a graduate of a woman's college, who has, for years, "investigated" under state and federal bureaus and discovered that she knew little of what she had been investigating. So she determined to spend "a few days" in learning the life of "an unskilled worker." This decision was reached when she read newspaper advertisements that told where weavers could easily earn twenty-five to thirty dollars per week in certain New Jersey mills. Right here this young woman again indicated that her past experience in "investigating" had still left her entirely ignorant of practical textile conditions, otherwise she would not have classified a weaver as an unskilled worker.

In the story she tells about visiting the mills, which were evidently of the worsted variety from the description she gives, and she was quite peeved because the employment foreman declined to allow her to learn weaving and gave as his excuse that she was too old. (She acknowledges 28). Because of this, she says, "so much for twenty-five-dollar-a-week advertisements." Evidently the employment foreman did not care to pay that price for an unskilled worker.

Later, in another mill, she finally secured a position as a laborer in a weave room. She says this room was "nearly 500 yards in length." A 1500-foot weave room is a little longer than the average weave room and thus the mill must have been considerably larger than the average plant. Her first impression of this weave room was "the deafening roar," but in the next paragraph she tells about a wordy combat that continued for fifteen minutes between the weave room foreman and the Italian woman weaver who was to become her teacher, concluding, "but at last my escort told her that there was no alternative (but to teach this green hand to weave) and she succumbed. How this young woman could understand what was said during that fifteen minute conversation in the "deafening roar" of the average weave room is not explained, unless she was an adept at what is known in the institutions for deaf people as "lip reading."

Her next complaint about this 1500-foot weave room was that "there was no windows on the sides, just frosted skylights over head, so that one could not tell whether it was raining or shining out side." Evidently saw tooth roof construction, which engineering science tells us is the very best construction for lighting purposes was not appreciated by this lady critic.

This woman-writer indicated that the Italian woman was rather disgruntled at having to bother with a learner, an experience somewhat different than is the case in most southern mills, as these mills usually pay the experienced weaver something additional for teaching learners. One mill paying a bonus of $10.00 for each new weaver thus educated. The experienced weavers in this section are usually glad of an opportunity to pick up this additional bonus, although it is to be admitted they probably have very few "woman's college graduates" to contend with in their teaching experiences.

After a very graphic description of her experiences in a textile plant which continued for a "few days," and the immense difficulty she found in making her 80 cents a day which was the rate paid learners (and which was doubtless quite as much as the lady was worth) she secured some entirely new ideas on American industrial methods. Despite fact that the lady was inclined to get sore because the foreman in the first mill gave as his reason for declining to employ her as a weaver that she was "too old," in her summing up of the situation she censured the next mill because she was "allowed to learn weaving on a notion of her own that she would like to weave." She then complains further "I was allowed to drift from place to place, no one seeming to be concerned as to what happened to me." On the other hand, if they had made a careful examination of the lady and found upon this examination that she was in their opinion physically unfit for the work she thought she wanted to do, this would have given her another excuse for denouncing corporations that advertise wages of twenty-five to thirty dollars a week for weavers and then decline upon a variety of excuses to hire a young woman only 28 years old.

This is certainly a cruel world.

COTTON MANUFACTURING.

Fancy Colored Fabrics.

BY T. WOODHOUSE, M. TEX. INST. AND J. IRELAND.

The introduction of special warp figuring threads such as or similar to those illustrated at A and E, Fig. 88, in connection with the articles on "Designs for Fancy Cotton Fabrics" offer exceptional opportunities for the embellishment of otherwise comparatively simple fabrics, and this type of structure is extensively practised for all kinds of fancy textures. When a jacquard loom is employed, and the interlacing of the various sets of yarns is accompanied by a diversity of colored yarns, some very pretty patterns can be made. Much of the beauty of some of these fabrics is however, lost in the ordinary black and white or in the half-tone illustrations, and for this reason it has been thought advisable to illustrate a few by reproduction in their proper colors. At the present time a very popular method with regard to portieres and side window curtains is to utilize simple twilled fabrics in art shades, and to sew on the edge of the curtain a narrow fancy fabric somewhat similar to those illustrated at *A*, *B* and *C* in Fig. 1. All three fabrics are identical in structure, but they differ from each other in the color scheme, and the difference in appearance is very striking.

The color utilized in any of these narrow fabrics should be in harmony with each other and the complete scheme should also harmonize with the color of the curtain which is to be decorated with the narrow fabric. It therefore follows that a fairly large selection of differently-colored bands or narrow fabrics will be required to adorn the various colors of curtains, and to satisfy the different tastes of the buyers.

Our first object will be that of describing the weave structure. Although the full width of the fabric is only a little over 2½ inches, there are too many threads to be illustrated on one sheet of design paper, so we propose to curtail the actual design as much as possible but still to introduce a sufficient number of threads to embrace the various units of the complete design. The various units will also be represented by different marks in order that each part may be localized and examined easily.

When a floral or other jacquard figure is painted on design paper it is an almost invariable rule to choose design paper in which the ruling of the vertical and horizontal lines in the square blocks is proportional to the number of threads and picks per inch. Thus if the cloth is to be woven by a 400's jacquard machine there will be 8 vertical rows of small squares between each pair of heavy vertical lines because each short row of such a jacquard contains 8 needles. The number of horizontal rows of small squares between the heavily-marked horizontal lines will depend, on the other hand, entirely upon the relative number of picks of filling to warp threads per inch. When the numbers of squares correspond to the number of threads and picks per inch, the design can be drawn and painted without any distortion in either direction, and when these conditions obtain, the work is naturally very much simplified. In our representation the design, Fig. 2, is made on perfectly square 8 by 8 paper, and since there is a large number of threads per inch as compared with picks per inch, all parts are very much contracted in the way of filling; as a matter of fact, the figure, if drawn to correct proportions would be nearly three times as long as it is represented.

All the threads of the warp are 2-ply twist yarns, and with the exception of the ground threads, work in pairs or double threads. The ground threads weave plain all over, and this weave is indicated at all points by dots. Although the figuring threads run in pairs, each pair is represented on the design paper by a single row of vertical squares. Approximately two-thirds of the design is shown on the design paper, those parts on the right of the extreme edge of the floral part, see Fig. 1, have been omitted because they are practically identical with the corresponding parts on the left of the floral part, and may therefore be reproduced by the same hooks and needles of the jacquard. It will be noticed that the two spray stripes are symmetrical, but that the two bands of twills move in the same direction.

The threads which help to form the bulky or rounded selvage are marked in left diagonals in Fig. 2, and are bracketed *D*. There are 12 double threads in this section and they interweave with the filling in double plain cloth order, and thus form a miniature pipe. The weave is in reality that which is used in the manufacture of circular bags, circular pillow cases, hose-piping, and the like. Adjoining these 12 selvage threads is a basket or chain-stitch effect *E* occupying 13 threads. Five of these are ground threads marked in dots, and the remaining 8 (4 double threads) float over three picks and under one. The introduction of the plain threads between the floating threads helps to make a firm structure at this point. Next follows 48 double threads forming a 3 up 1 down twill to left. In the design these threads are marked by right diagonals at *F*, but one unit only of the weave has been introduced. The design up to this point terminates what might be called the plain part of the figure, or the narrow strip, along with the corresponding strip near the other selvage, encloses the actual figuring threads.

Three plain threads are introduced at *G*, and then a small spray effect on 10 threads along with the intervening plain threads appears at *H*. These 10 double threads are shown in double diagonals and the effect is complete on 6 filling picks. Following this spray effect are other 3 threads of plain marked in dots at *J*, and then comes the actual floral design. The leaves and branches in all three patterns in Fig. 1 are developed by green threads, whereas the color effect in the flowers and buds in each pattern differ from the others. Consequently there are in all cases at least two distinct colors of extra warp threads to develop the floral design. One complete unit of the floral design is shown at *Y* in Fig. 2; it occupies 108 threads, every third of which is a plain one. The order of warping for this

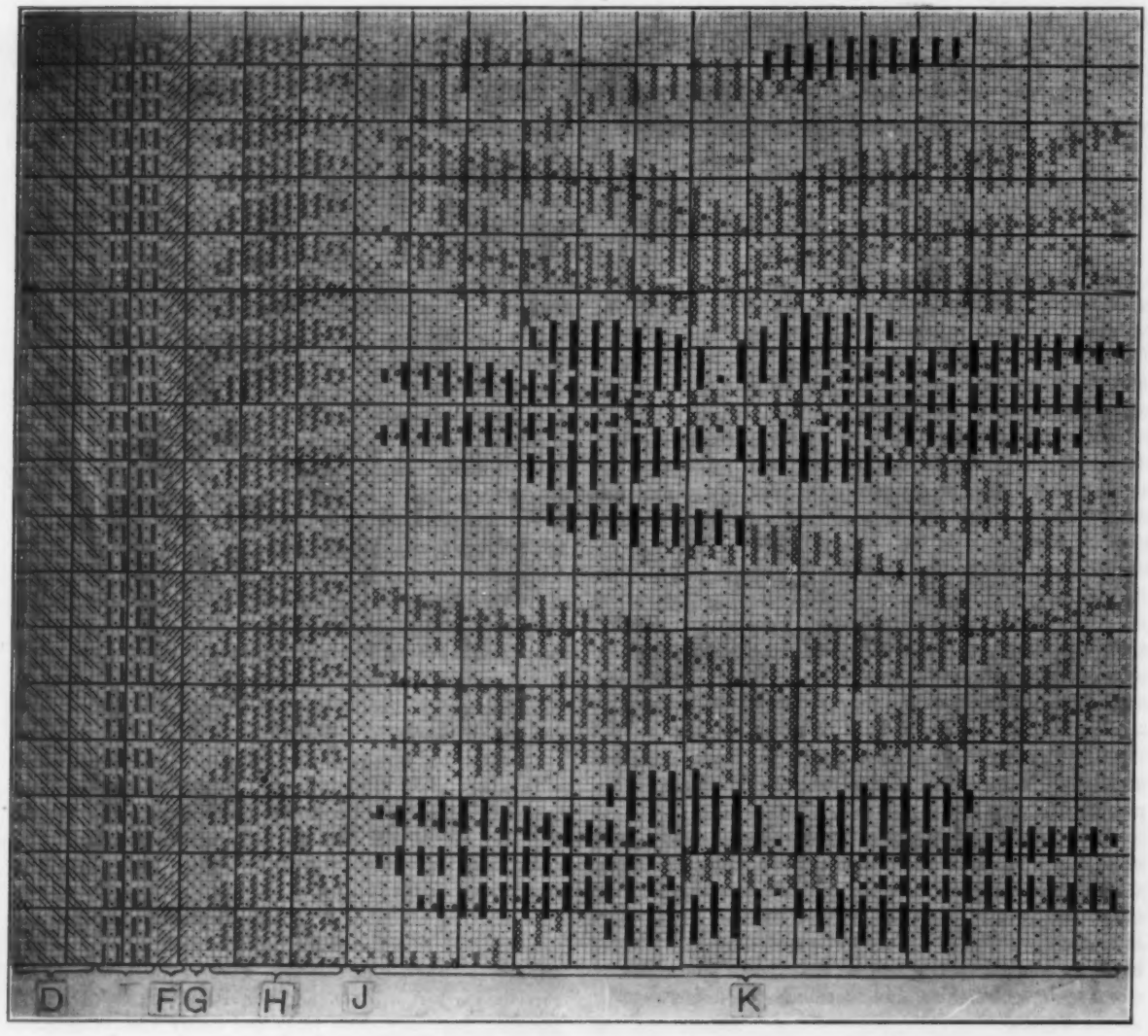


FIG. 2.

floral part is: 2 threads for branches and leaves represented by one line on the paper; 2 threads for flowers and buds represented by one line on the paper, and 1 thread for ground.

The positions of the flowers on the surface of the cloth are represented by solid marks, whereas the branches and leaves on the surface are represented by crosses (×). It will be seen that the distance between the solid marks in successive flowers and in several parts among the branches and leaves is comparatively great. When the figuring threads are not displayed on the surface they are taken to the back of the cloth, and they would naturally float for the entire distance between successive marks if not joined by some means to the body of the cloth. The figured band, as already mentioned, will ultimately be sewed on the edge of a curtain, and hence the underside of the figured band will be hidden from view. Nevertheless, it is often considered unwise to allow such threads to float over considerable distances even when the fabric is intended to be used as indicated, and to prevent these long floats it is a usual practice to stitch them or to interweave them at suitable intervals between the two ends of the otherwise floating thread. The stitching, however, should be done in such a way that the thread will not show on the surface of the fibre, otherwise the cloth would be defective. The small circles (o) on both sets of figuring threads show where each or any thread has been lifted over the picks to shorten the floats, and since there is a float on the surface, say of two or more picks of the opposite figuring threads on the two sides of the circle or stitching point, these two floats close up either wholly or partially and in most cases effectively hide the stitching point from view. Even with the stitching points the floats at the back are fairly long, and in certain places the character of the weave on the surface will not admit of the introduction of a stitching point—it could not be hidden perfectly.

It will be quite evident that a jacquard machine will be required for the weaving of this cloth, but whether the cloth would be developed solely by the mechanism of a jacquard, or whether such mechanism would be supplemented by a

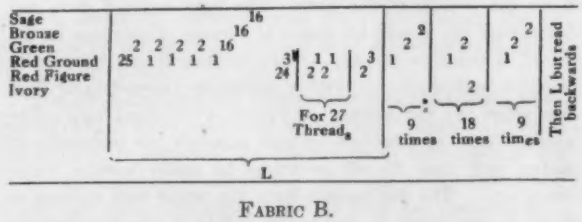
Fig. 1

Reproduced direct from the fabrics. Three-color process engravings and printing by Jacobs & Company, Clinton, S. C.

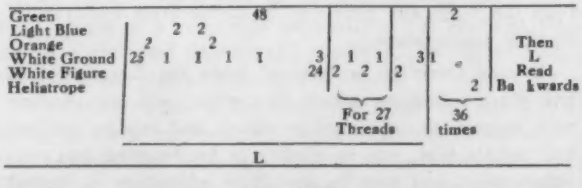
dobby or a tappet would be determined by those who were responsible for the production of the cloth, and perhaps partly by the number of different patterns which could be produced with the same mounting. We have already pointed out that the direction of the twills near the two selvages is to the left, but if these parts twilled in opposite directions, all parts marked *D, E. F. G. H.* and *J,* in the left border would be symmetrical with the similar parts in the right border, and one set of needles and hooks could control both provided that the jacquard harness for these parts were centre-tied. But since these groups embrace 83 threads on each side, it is quite possible that part *J* would be included with the central figure, and the other parts *D* to *H* or 80 threads each side, controlled by 10 rows of hooks, 8 hooks in each row. Then there would be 80 hooks centre-tie controlling 160 threads and 113 hooks single-tie controlling 113 threads and reckoning all threads as being single ones. This would mean that there were 80 + 113= 193 hooks employed, say in a 200 jacquard machine. It is quite possible, however, that all the plain threads would be operated by a tappet and 2 harnesses working in conjunction with a jacquard, or perhaps the figuring threads in parts *H* and *J* only would be operated by the jacquard, and the remainder either by a small dobby or by tappets. In these cases there would be 10 threads in *H* on the left, 72 threads in *K* in the centre, and 10 threads in *H* on the right, or 92 double threads. These could be drawn double through the mails and operated by 92 needles and hooks of a 100s jacquard. In addition to this there would be: 2 harnesses for the plain threads, 4 harnesses for the twill parts *F,* for the floating threads in parts *E,* and for half the threads in part *D,* that is the 3 up and 1 down. and 2 harnesses for the 1 up 3 down threads in part *D,* Altogether 8 harnesses, with 4 picks to the round.

The reeding of the threads is as follows: the selvage threads in part *D* are 3 per split; the chain stitch threads in part *E* are 2 per split; the twill threads in part *F* are 2 per split; the spray figure threads in part *H* are 2 per split; the floral threads in part *K* are 3 per split; and the reed contains 44 splits per inch. The warping particulars are as follows:

FABRIC A, FIG. 1.



FABRIC B.



FABRIC C.

The warping for this pattern is the same as that of Fabric A with the exception that salmon pink and pink replace the heliotrope in the floral pattern, and yellow and pale green replace the orange and pale blue parts in the ribbed parts *T* which adjoin the double plain weave selvages. There are three shots of filling in each shed, and 28 of thes triple picks per inch.

Fire Protection Educational Films.

The New York Public Library has completed the following list of educational films on fire protection and fire prevention:

A Crime of Carelessness. Obtainable from the National Association of Manufacturers. Cost of rental: transportation charges only. The owner of a large woolen mill is careless about fire equipment being kept clear. The inspector fails to report it. An employee breaks the rule prohibiting smoking and carelessly throws his lighted cigarette into a pile of rubbish. The mill burns and a panic follows. The factory is rebuilt. Tom is reinstated and both employer and employee has learned a lesson.

Fire Department, Manila. Obtainable from the Bureau of Commercial Economics. Cost of rental: transportation charges only.

Fireproofing Children. Obtainable from the Educational Films Corporation of America, 729 Seventh Avenue. New York City. Cost of rental: $3.00 per reel per day (105B). Much loss of life among school children is due to playing with fire in various forms. The film shows how children's clothes may very easily and economically be made fire proof by a solution easily purchased at any drug store.

Mayors Organize to Prevent Great Fire Losses. (Univ. Current Events 44.) Obtainable from the Universal Film Corporation, 1600 Broadway, New York City. Cost of rental: $3.00 per day. Carelessness and lack of prevention methods are largely blamed for more than $200,000,000 property loss in the U. S. during 1917. Mayor Hylan of New York, a leader in the movement advocating proper means of prevention.—Night watchman should be equipped for all emergencies.—An example of carelessness.—Slight pressure will sometimes cause oily waste to smolder.—If the watchman is prepared, disaster is prevented.—"An ounce of prevention" might have avoided this.

How New York Does It. Fire Department. Obtainable from the General Film Company. Cost of rental: (?).

New York City. Civic Administration Part 3. Obtainable from the Beseler Educational Film Co. Cost of rental: $2.00 per performance. The fire fighters.—Drills.—The rescue squad at work.—Water tower practice, etc.

New York City. Civic Administration Part 4. Obtainable from the Beseler Educational Film Co. Cost of rental, $2.00 per performance. Fire fighting.—The fire boats in operation.—A river front fire.

The Locked Door. Obtainable from the Underwriters' Laboratories, 207 E. Ohio Street, Chicago, Ill. Cost of rental: transportation charges only. A fire-prevention film.—*Fire Protection.*

The Nineteen-Eighteen edition of "Lowinson's Comparitive Cotton Goods Chart" went into the hands of the printer on December 31st. These charts are now ready for distribution and will be sent gratis to any one legitimately interested in gray cotton goods for the past year. These charts are prepared by Louis Lowinson, 72 Leonard St., New York City.

Dyeing, Bleaching and Finishing.

Fireproofing Cotton Goods.

BY WILLIAM B. NANSON.

FLAME AND SPARK RESISTING.

Combustion is a chemical process in which bodies combine to form new compounds with the evolution of heat and usually light. In ordinary cases of combustion, oxygen is one of the combining bodies, and the substance with which it unites disappears with it in a gaseous form.

In the case of cotton it is the carbon and hydrogen which combine energetically, under the influence of heat, with the oxygen of the atmosphere and produce combustion with the evolution of carbonic acid gas and water. These compounds would, if undisturbed, gradually surround the burning mass with an envelope of gaseous substances devoid of all oxygen, and the fire would go out, if it were not for the fact, that on the combination which ensues they assume a volatile form and float upward with the air rarified with the heat, thus allowing the admission of fresh supplies of oxygen to reach the ignited body of the cotton and continue the fire indefinitely.

Although the combustible bodies are enveloped with atmospheric air and are ever disposed to unite with its oxygen, the process cannot commence until the temperature of the combustible has been raised to a certain point, when it is said to catch fire, or ignite; the process thus begun afterwards evolves the necessary heat for its own continuance. Now in order that any combustible substance shall burn, or, in other words, in order that brisk chemical action shall occur between the substance and the atmosphtric oxygen it must be first heated to a certain temperature and then kept at that heat, and, the temperature at which it ignites is known as the kindling temperature of that substance.

Every combustible substance has its kindling temperature, that is, the temperature at which it will combine with oxygen. Below this temperature it will not combine with oxygen. No temperature can be found, however, at which the action definitely begins. Raising the temperature increase the rapidity of nearly all chemical interactions, and we believe that every such change proceeds with some speed at every temperature. Whether a given material can maintain itself at a temperature proper to violent interaction will depend on the amount of heat developed by the action itself on the one hand, and by the loss of heat by conduction and raidiation on the other. If the latter are great the former must be greater.

The degree of heat necessary to start any fire must be kept up continuously, or the fire will go out. When all burning bodies are cooled below their kindling temperature, they are extinguished and the chemical action which occasioned the appearance of heat and light ceases.

The condition of the air as to temperature, density, and the presence of aqueous vapor, variously affect the process of combustion. Increase of the density, for instance, adds to the quantity of oxygen to be found in a given volume and consequently may be expected to increase the rate of combustion. On the other hand, the excessive and undue presence of moisture, carbonic acid, or nitrogen volatitized from some fire resisting material combined with the substance or goods, may serve to extinguish it.

If a piece of cotton cloth should be heated to its kindling temperature all over at once it would burn up as rapidly as it could secure the necessary oxygen; but the burning does not usually take place so rapidly for the reason that only a small part of the fabric, is, at any one time, heated to the kindling temperature. If we watch a strip of cotton cloth burning we shall see how the fire creeps slowly along it. Only those parts of the cloth which are nearest the flame become heated to the kindling temperature. They become ignited and in turn heat the parts nearest to them to the necessary temperature and so the flame creeps slowly throughout the length and breadth of the strip.

In view of all this it may be indicated therefore, that anything that will raise the kindling temperature of a substance, such as a cotton fabric, will make for its fire resisting qualities, and that it is obvious, that any active measures toward fire proofing cotton goods must lie in this general direction.

Substances which have the power to combine with oxygen are said to be combustible, and substances which have not this power are said to be incombustible. Most elements combine with oxygen under proper conditions, and are, therefore, combustible. Most compounds formed by the union of oxygen with combustible substances are incombustible. For example the sulphur dioxide, carbon dioxide, magnetic oxide of iron, and phosphorous pentoxide, formed when sulphur, carbon, iron, and phosphorous are burned in oxygen, are incombustible, they have absorbed their quota of oxygen and cannot combine directly with more;—they are therefore fire resisting and fireproof.

If we wet a cotton thread with water and apply a flame to it, it will not burn until the water is first driven out of it by the action of the heat. The heat applied does not decompose the water, no chemical change takes place in the water, it contains already all the oxygen it can chemically combine with, and any further oxidation (combustion) does not affect it; the change is purely a physical one. The applied heat is absorbed by and expands the molecules of water, and they fly off as steam to again become water when cool. The fire cannot burn the water and so long as there is any water in the cotton thread it absorbs the heat from the flame and prevents the cotton from reaching its kindling temperature.

It may therefore be inferred from the foregoing that any other substance, which, like water, will not combine with oxygen, or, will quickly absorb and rapidly conduct and radiate heat, may be classed as fire-resisting and non-inflammable, and may be used with advantage to protect cotton fibres from fire, hence, it is obvious that to make cotton goods non-inflammable we must look for something that will either raise their kindling temperature above that

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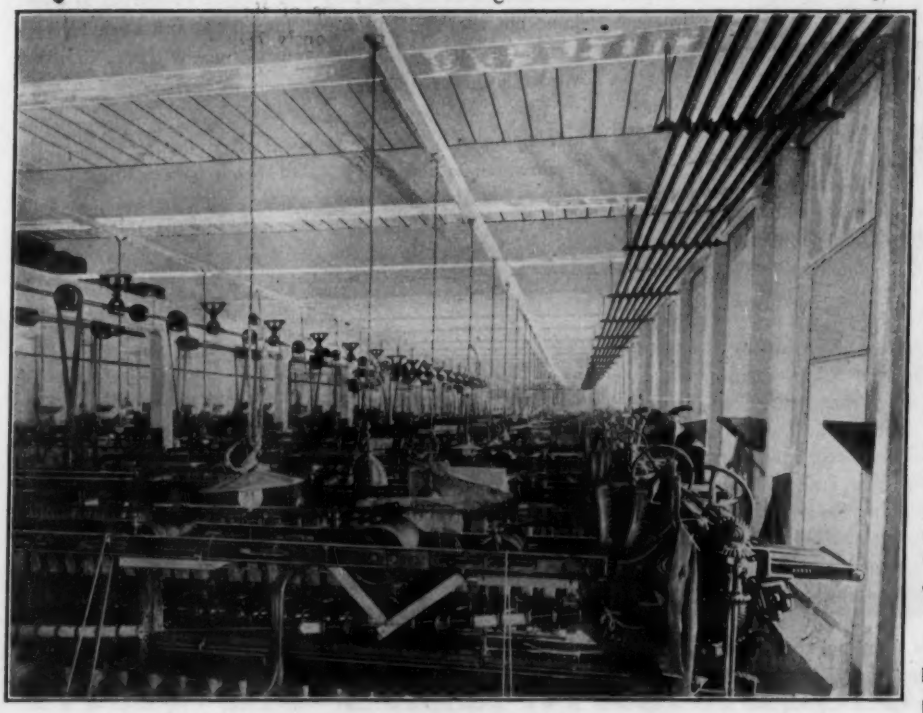

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of ordinary flame, or something that will prevent the air, with which they are immediately surrounded from becoming heated to their kindling temperature.

To accomplish the former we must resort to purely mechanical means, by the addition of fixed insoluble oxides or iron, aluminum, tin, etc., but it must be remembered in this connection that some of these present the grave disadvantage of affecting, more or less, the color of the goods.

To accomplish the latter, however, we have a wide field to operate in, most of these operations being based upon some chemical action which would remove or replace the oxygen from the air immediately surrounding the fabric and substitute some other non-inflammable gas, such as nitrogen, ammonia, carbonic acid, etc., thus cooling the air surrounding the burning substance to a temperature below its ignition point.

The air composing our atmosphere consists of two gases, one of which is oxygen, and it has been shown that when the oxygen is removed the gas which is left has not the power to support combustion. This gas is nitrogen, and it will not burn. Nitrogen not only does not combine with oxygen readily, but it does not combine with any other element except at a very high temperature. It exists in the air in a free and uncombined condition, and serves only the useful purpose of diluting the oxygen.

To consider some of the theories of flame and spark resisting methods intelligently, it must be always remembered that nitrogen and oxygen are not combined chemically in the air, but are simply mixed together mechanically, and that the atmosphere of the earth consists approximately of 77 per cent of nitrogen and 23 per cent of oxygen.

Now it is obvious from the foregoing, that any mode of procedure having the power to remove the 23 per cent of oxygen, or any part of it, from the air surrounding the burning fabric, will act as a fire preventive, for, if the oxygen be removed, the nitrogen will put the fire out, and it is upon this theory that many of the methods to prevent the transmission of flame in cotton goods are based.

Inventors have occupied themselves for years with efforts to discover means of rendering cotton goods incapable of transmitting flame, and the methods discovered and proposed are varied and numerous, but few, if any, afford absolute guaranty and a perfect method has never yet been found, the trouble being that all the methods devised give but a partial satisfaction, owing to the fact that the materials used,—although incombustible enough in themselves while they remain incorporated with the fabric—do not possess indefinite durability. Through atmospheric influences and wear and tear they are liable to dust off, or, wash off, and lose their effectiveness, and must be frequently renewed. The substances which act mechanically are generally non-volatile mineral salts, neither fresible, deliquescent nor hygrometric; these are dissolved in proportions as will be shown later on, and frequently mixed with other substances to increase their power of adhesion. The fabric to be rendered fire proof is either steeped in the solutions or padded with them by a machine similar to the one shown at Fig. 1, also in some cases the proofer is applied by a brush.

The salts most commonly used are phosphates, tungstates, borates, and, where gaseous and chemical results are required, the ammoniacal salts, these latter being vola-

tilized by the heat, with the evolution of carbonic acid and ammonia, which are non-supporters of combustion.

In studying the effects of various salts on the combustibility of textiles, it has been found that the most efficaceous are the ammonium salts, and zinc, tin, borax, boracic acid, and aluminum, the latter a precipitate of aluminate of soda with an ammonium salt. The zinc, tin, and alum in conjunction with the ammonium salts have given the best and most permanent results. The ammoniacal salts, volatilizing under the influence of heat, form mixtures with the oxygen of the air and other combustible gases which are completely incombustible, the former of which combine with the fabric, while the latter forms an inert and non-inflammable atmosphere in which nothing will burn. The action of tin, aluminum, zinc, tungstates and borates is a purely mechanical one; they simply receive, conduct and radiate the heat, so that at no time is the fabric itself able to keep up and perpetuate its own kinding temperature, but when exposed to flame from other sources than itself, it simply smoulders, blackens and chars without bursting into flame, in other words they are fire resisting and slow burning because their presence raises the kindling temperature of the fabric above that of the flame being applied to them, and with the possible exception of tin and alumina their efficacy is short lived. This applies to ammoniacal salts also; they either dust out or wash out, and must be renewed frequently. The oxides of tin, iron and tungsten possess great fire resisting possibilities but they have their limitations;—Tin and tungsten are too expensive and iron is colored and therefore impracticable unless a buff color is permissible. Alumina, as we shall show later on may be converted into an insoluble flame proof compound and used with measureable success.

Peroxide of tin is applied to the cloth in the state of a soluble combination of sodium hydrate and oxide of tin, known as stannate of soda, and may be obtained by adding a solution of caustic soda to a solution of perchloride of tin, until the precipitate at first formed is entirely redissolved. If a piece of cotton cloth impregnated with such a solution is dipped in a solution of chloride or sulphate of ammonia or dilute sulphuric acid the alkaline combination of tin and soda is decomposed, and peroxide of tin is precipitated within the fibre.

The efficacy of peroxide of tin as a flame proofing agent arises from the fact that the fibre has such a strong affinity for the tin oxide that it becomes a part of it, and is permanent, and further, because the tin oxide being at its highest state of oxidization cannot combine with more oxygen and take fire.

The Perkin process for fireproofing cotton goods by means of peroxide of tin has recently gone the rounds of all the textile journals. We give it here although it is impracticable on account of the cost.

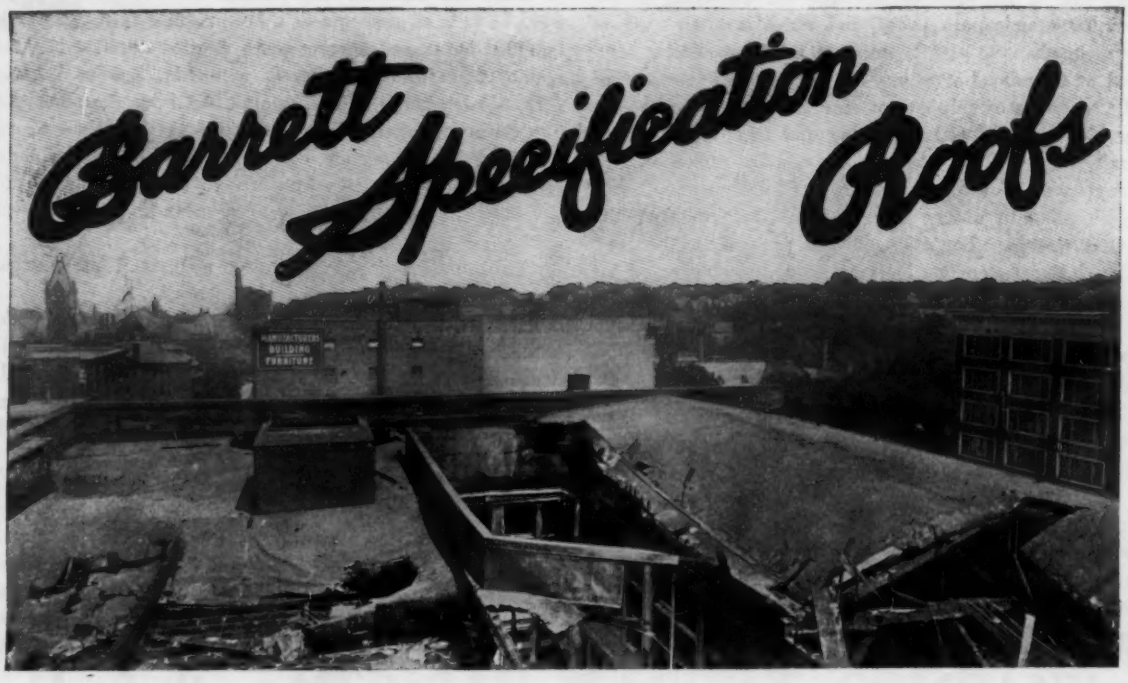
The cloth is first thoroughly scoured until absorbent, this is important or the tin oxide will not penetrate the hollow cylinders of the cotton fibers. After being thoroughly scoured, soured, washed and dried, the goods are padded on a machine like Fig. 1, in a solution of stannate of soda standing at 45 degrees Tw., and dried up. It is next run through a solution of ammonium sulphate at 15 degrees Tw., and dried again. It is then washed in cold water to remove the sulphate of sodium or this may be left in to suit the taste or ideas of the finisher, if left in, it will make the goods enormously heavy. This process finishes the goods so that they will char if submitted to a hot flame but they will not burst into flame and burn actively even after being used and washed many times, in other words the fireproofing is effective and permanent.

We would say here that all goods padded with tin preparations must be heavily squeezed after passing through the liquor; the action which takes place is not clear to the writer, but the heavy pressure seems to increase the catalytic force or affinity of the cloth for the tin oxide, or, weaken the affinity of the tin oxides for their solvent, or, both, with the consequent deposition of more tin oxide on the goods. A more rational tin process than the one just given is the following:

Steep the goods for one hour in stannate of soda at 20 degrees Tw., squeeze heavily and dry. After drying they are run through a bath composed of chloride of ammonia and acetate of zinc at 17 degrees Tw. and dried without washing.

In the Melauny process, which is highly eulogized by the French authorities, the cotton is run through a solution of stannate of soda at from 5 degrees to 10 degrees Be and dried up. It is then run through a solution of a titanium salt, any soluble titanium salt will answer but we would suggest the chloride. This solution should be so constituted that each litre may contain about 62 grammes of titanium oxide. The fabric is again dried and the titanium salt is ultimately fixed by means of an alkaline bath. It is advantageous to employ, for this purpose, a solution of silicate of soda of about 12 degrees to 15 degrees Tw., or, a mixture of tungstate of soda and ammonium chloride may be used. The fabric is afterward washed. The goods may also be treated, after the stannate, with a mixed bath containing titanium, tungsten and a suitable solvent.

We would say here, that in place of stannate of soda as a flame resisting agent, which is expensive, we would suggest the analogous salt of alumina. It is cheaper and we think its fireproofing properties are equally valuable. It has been used under the name of alumin, and being its highest degree of oxidization it cannot burn, being incapable of further oxidization, and being, moreover, an insoluble hydrate, it acts in a purely mechanical way by rendering the goods non-inflammable in themselves, while the subsequent treatment with ammonium chloride, which volatilizes at a red heat, affords its usual gaseous protection as explained earlier in this article. Aluminate of soda, or, "alumin" as it is called, may be made by dissolving powdered alum in a solution of caustic soda until it becomes saturated or until a precipitate begins to reform. The fabric is run through this at about 15 degrees to 20 degrees Tw., and dried up; during the operation of drying the carbonic acid of the air seizes upon the caustic soda which holds the alumina in solution causing the formation of carbonate of soda and the precipitation of the aluminum hydrate. The time consumed in drying, however, is seldom sufficiently prolonged to allow of the complete decomposition of the aluminate of soda. This is ensured by afterwards passing the goods through a dilute solution of chloride of ammonium, which immediately determines the complete precipitation of the alumin.



Why the Underwriters approve Barrett Specification Roof—

Ashton Building, Grand Rapids, Mich. Gen'l Contr's: Campbell & McNabb, Grand Rapids, Mich. Roofers: F. J. Sokup & Co., Grand Rapids, Mich.

Photo above shows the roof of the Ashton Building in Grand Rapids after a recent fire.

The building carried a Barrett Specification type of roof which served as an air-proof fire-blanket—*and served well!*

A report of the fire states that the firemen played two heavy streams on this roof for two hours while the fierce fire raged in the upper stories.

Yet the roof did not burn and only succumbed *where the destruction of the roof boards and beams brought about a complete collapse of the support.*

In fire that twisted steel and melted copper, the roofing only smoked, softened and cooked; but it did not blaze or furnish fuel to the flames!

Notice how strips of it hung on the rafters where flames could attack it edgewise, and yet it was not consumed!

No wonder the Underwriters Laboratories put Barrett Specification Roofs in "Class A" and accord them the base rate of fire insurance!

20-Year Guaranty

We now guarantee Barrett Specification Roofs to last for twenty years without cost for maintenance. The Guaranty is a Surety Bond issued by one of the largest surety companies in America, the United States Fidelity and Guaranty Company of Baltimore. It is offered on all roofs of fifty squares and over in all cities in the United States and Canada of 25,000 population and more, *and in smaller places also where our Inspection Service is available.*

A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request.

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Sulphate of ammonia may be used in place of the chloride. One of the cheapest methods for rendering cotton goods flame and spark proof, and which is often used on awning goods, is to pad the goods in a boiling solution composed of 60 gallons of water, 16 pounds of acetate of lead and 12 pounds of sulphate of zinc, allow the goods to lay over night in this without drying and then repeat in the morning and dry up. After the goods are cooled off, run through a solution of alum using one half pound of alum to each gallon of water. The goods are dried up from this without rinsing. Tungstate of soda is used in the laundries of Europe on fine laces as a fire proofing agent but is too expensive for commercial use and is not permanent.

One of the best ammonia compounds for fire resisting purposes is phosphate of ammonia, which is very effective and possesses the added merit of simplicity.

If a textile is steeped in a 10 per cent solution of phosphate of ammonia and dried, it raises the kindling temperature of the fabric so treated, so that when fire is applied to it the rapid evolution of carbonic acid and ammonia not only renders the textile non-inflammable in itself by the mechanical union of the phosphoric acid with the fibre, but the two gases themselves being incombustible surround the fabric with an atmosphere containing no free oxygen, and consequently of a non-inflammable character.

This process stiffens the goods considerably, but they become charred only and do not readily flame up when exposed to fire. This process will not stand washing or water, however.

Another process by which the phosphoric acid and ammonia may be utilized for fire proofing is by the fixation of an insoluble magnesium—ammonium phosphate precipitated on the fibres.

The material is first padded in a concentrated solution of a soluble phosphate, preferably the mono-calcium salt, and dried. It is then passed through an ammoniacal solution of magnesium chloride composed of ammonia, chloride of ammonia, and sulphate of magnesia. Ammonium phosphate is thus precipitated on, and in, the fibre, and after rinsing in a very diluted ammonia water, and drying, the material is practically non-inflammable. This property is only slightly affected by rubbing or washing. In making an ammoniacal solution of magnesium chloride it must be remembered that magnesium hydrate is soluble in a solution of chloride of ammonium, and that ammonia produces no precipitate in a solution of magnesia containing an excess of chloride of ammonia, therefore, care must be taken that sufficient chloride of ammonia is present to prevent the precipitation of the hydrate. The light rinsing after this operation in weak ammonia water serves to complete the process by precipitating any hydrate that may be uncombined with the fabric and washing off all loose particles of the hydrate.

For rendering fabrics non-inflammable by means of starch compounds, the following mixture may be commended: 10 parts hypo-sulphate of soda (granulated); 10 parts corn starch, 10 parts common salt, 5 parts Borax, and 10 parts magnesium hydrate (talc).

These must be well ground together so as to be thoroughly incorporated, add the necessary water according to stiffness required and boil all together. This is an entirely mechanical process and is not permanent.

The French Academy of sciences have awarded a medal of honer for the following process based on the employment of salts of ammonia as a fire proofing agent, to which is added borax and boracic acid: 8 kilos sulphate of Ammonia, 2.5 kilos carbonate of ammonia, 3 kilos boracic acid, 8 kilos borax, 2 kilos starch, 0.4 kilos dextrine, and 100 litres of water. This is applied to the fabric at 86 degrees F. on the mangle, Fig 1, and dried on the dry cans.

The following is also French: 15 kilos chloride of ammonia, 6 kilos boracic acid, 3 kilos borax and 100 litres of water.

Neither of the two foregoing will stand washing or water.

Now it will be seen from all that we have said, that the selection of the process and the agents used depend largely upon whether the goods are required to stand washing. If not, as is usually the case with lace goods, a mixture containing one or more of the following bodies may be used:

Metallic oxides, such as tin or alumina.

Compounds of ammonium, such as the chloride or phosphate.

Sodium phosphate, borate, silicate, tunstate, or alum.

In many cases it is only necessary to mix the materials with the dressing mixture, but where the fireproofed goods have to stand washing or outdoor wear and tear, the fireproofing again must, if possible, be precipitated on the

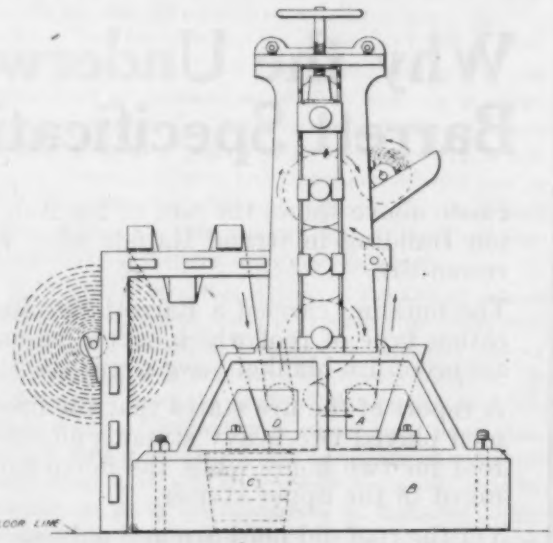

FIG. 1.

fibre by means of a double reaction as we have shown in the recipes calling for the precipitation of tin oxide and alumin in which these oxides and hydrates are precipitated on the goods insolubly by means of a double decomposition caused by the application of ammonium and other salts.

After all, the only permanently efficient way to render cotton goods non-inflammable is to convert the fibres themselves into a non-inflammable substance, by adding, possibly oxygen to the cellulose and in time some genius may discover such a process.

Referring to the illustration (Fig. 1) the liquor box *A* is small and raised up from the floor by the wooden sills *B*. This is done so that the pail *C* can be placed under the box *A* and the plug hole *D* to draw off any liquor that may re-

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PAWTUCKET, R. I.

main in the box when the padding operation is finished, said liquor being expensive and worth saving. The four squeeze rolls are rubber. It will be noticed that the goods get two immersions and two squeezing nips.

[NOTE.—This is the first of a series of articles by this well known authority. Others will be published later.—EDITOR.]

Another Suicide Suggestion.

A few years ago some soap manufacturers were urging women to do their own clean'ng (in their own homes) with gasoline and a soap preparation. After considerable effort on the part of fire marshals and the National Fire Protection Association, fire chiefs and others, display of these advertisements was discouraged and today they are not frequently seen.

The latest "suicide" advice comes from high medical authorities, who, according to State Fire Marshall James R. Young, have been widely quoted in North Carolina as advising purchase of an eight ounce bottle of gasoline to be kept in the medicine chest for disinfectant purposes. Gasoline was particularly suggested for treating cuts and scratches to prevent complications. Now it is necessary for Fire Marshal Young to begin a counter campaign urging the people to substitute some other disinfectant equally as good as gasoline instead of taking this high explosive into the medicine chest. Such use of gasoline as is suggested by these high medical authorities will certainly lead to casualties requiring something far more serious than a disinfectant. Has this advice of medical authorities penetrated in other states?—*Fire Protection.*

Lubrication in Textile Mills.

L. Sonneborn Sons, Inc., of 262 Pearl Street, New York City, manufacturers of the well known "Amalie" brand textile products, such as sulphonated oils, bleaching assistants, softeners, gums and sizing preparation, have recently issued valuable information on the subject of "Shaftol" lubrication.

This is known as the Shaftol System of lubrication and it is claimed has been endorsed by not only the leading engineers, but highly recommended by all of its users. This system replaces the use of ordinary oils and shows a saving of more than 50 per cent in the cost of lubrication. One of its most important features is the entire elimination of leakage and drippings of oil from bearings, smooth running shafts and cool bearings under all conditions.

Textile mill engineers and superintendents can secure complete information regarding the Shaftol System of lubrication by addressing the above company.

The Stafford Company of Readville, Mass., are, as usual at this season sending out a calendar pad for the current year to fit their "Ideal" automatic loom desk calendar, which it will be remembered they have been distributing for some years past. If you did not get a pad for your calendar, drop them a card and remind them of it.

"Men who are convalescing may be employed advantageously to themselves and resultfully for the employer, if proper consideration is given to their surroundings."

Notes About Men You Know.

ANDREW P. CARTER, secretary-treasurer and general manager of the Louisville Woolen Mills Co., Louisville, Ky., recently died, a suicide, in Louisville. Mr. Carter for a number of years had been in poor health, and had suffered greatly from mental depression. Mr. Carter was 56 years of age, a native of Sweetwater, Tenn., and for several years in the insurance business at Atlanta. He later went to New York, and came to Louisville twelve years ago. His brother Fred A. Carter, of Sweetwater, organized the American Textile Woolen Co., which controls several plants, and which at one time operated the Sweetwater Woolen Mills, Athens Woolen Mills, Atlanta Woolen Mills, and Louisville Woolen Mills. The Atlanta concern withdrew from the combine some years ago. A. P. Carter at one time handled a large percentage of the sales of the organization. He is survived by his wife and two sons, Richard, 9 years of age, and Lieut. A. P. Carter, Jr., now in France.

JOHN W. OLIVER, formerly owner of the Broadway Bedding Co., Louisville, was recently killed in a fall from a ladder, at Stithton, Ky., where he had been working on Government construction work.

JOHN WILSON, foreman of the Hoosier Dye Works, New Albany, Ind., was the first victim in that city of the Spanish influenza. Mr. Wilson was thirty-four years of age.

JOSEPH L. NICKEL, 54 years of age, who for several years was a foreman at the old New Albany Hosiery Mills, New Albany, Ind., recently died of heart failure while sitting in a chair at his home on State street.

THOMAS S. TULEY, of the Louisville Cotton Mills, was re-elected secretary of the Louisville Country Club at the annual election recently held at the Pendennis Club, of Louisville.

LEE RODMAN, of the Indiana Cotton Mills, Cannellton, Ind., was recently in Louisville for a day or so on business and pleasure. Mr. Rodman for a number of years was local manager of the Ohio Falls Dye & Finishing Works, is still a member of the Pendennis Club, and has several relatives in the city.

H. R. DAVIS has resigned as superintendent at the Globe Mills, Augusta, Ga., to become overseer of weaving at the Enterprise Mills in the same city.

FRANK E. HEYMER has resigned his position as agent at the Alexander City (Ala.) Cotton Mills.

W. A. GILES, who has for many years been superintendent at the Graniteville Mfg. Co., Graniteville, S. C., has accepted the position as agent at the Alexander City Cotton Mills, Alexander City, Ala., assuming his new duties on December 16th.

MARION T. GRIMES has resigned his position as superintendent at the Tallasee Mfg. Co., Tallassee, Ala.

JAMES B. KNIGHT has accepted a position as superintendent of the Jackson Mills, at Monroe, N. C.

W. B. PEPPERS has resigned as overseer of weaving at the Palmetto (Ga.) Cotton Mills.

CHARLES M. STOY has returned to his former position as overseer of carding and spinning at the Anniston (Ala.) Cordage Mills.

R. J. WRIGHT has accepted a position as overseer of carding at the Ensign Mills, Forsyth, Ga.

J. S. LOCKMAN has resigned as overseer of spinning at the Fulton Bag & Cotton Mills, Atlanta, Ga.

JOHN MURPHY has accepted a position as overseer of spinning at the Globe Mills, Augusta, Ga.

MARCUS A. DARY, proprietor of the Dary Ring Traveler Co., of Taunton, Mass., died recently in his seventy-fifth year.

EDWIN L. TURNER has accepted a position as overseer of weaving at the Martel Mfg. Co., Eagan, Ga.

BROCK E. WILLINGHAM has resigned his position as overseer of weaving at the Echota Mills, at Calhoun, Ga., and accepted a similar position with the Jackson Mills, at Monroe, N. C.

J. W. CORDELLE has accepted a position as overseer of spinning, Room No. 1, Fulton Bag & Cotton Mills, Atlanta, Georgia.

J. J. NELSON has accepted a position as overseer of weaving at the Echota Mills, Calhoun, Ga.

M. T. Crowley has become overseer of spinning in addition to his present duties at the Atlanta (Ga.) Woolen Mills.

J. L. GREESON has resigned his position as overseer of spinning at the Langley (S. C.) Mfg. Co.

S. B. SIMMONS, superintendent of the Eureka Mills, Chester, S. C., has also been given charge of the Springstein Mills of that place.

A. CRYER, formerly assistant superintendent of Meritas Mills, Columbus, Ga., has been made superintendent of Mobile Cotton Mills, the plant recently purchased by the Meritas Mills.

C. E. STRATFORD has resigned as superintendent of the Jackson Mills, Monroe, N. C., to accept a similar position with the Irene Mills, Gaffney, S. C.

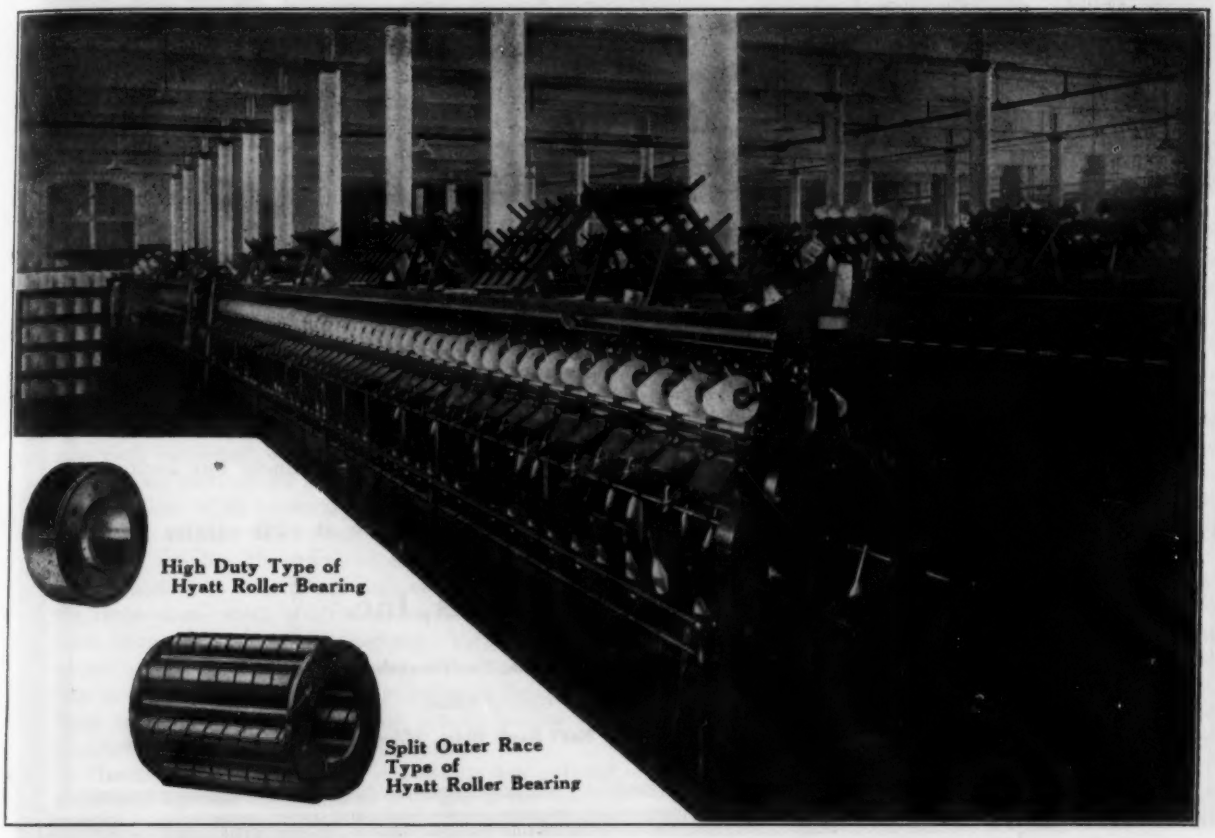
J. E. HARRIS has accepted the position of superintendent of the Tallassee Mills, Tallassee, Ala.

H. A. NEWTON has been made assistant superintendent of the Pacific Mills, Columbia, S. C.

WILL PARKER has accepted the position of superintendent of the Bibb Knitting Mills, Macon, Ga.

GEO. T. LYNCH has succeeded C. L. Jackson as superintendent of the Sutherland Manufacturing Company, Augusta, Ga.

The Draper Corporation, Hopedale, Mass., are sending to their customers and friends their regular standard Northrop Loom calendar, which they have been sending out for several years past. This is a heavy dark green board upon which is embossed in white and light green, the leaves, blossoms, and bolls of the cotton plant. In a panel near the top embossed in colors, is the well known Northrop sheeting loom, while the bottom of the card contains the usual calendar pads in the monthly and semi-monthly arrangement common to these calendars. If from any cause your calendar was not received for your mill office a card to the Draper Corporation will remedy the matter.



13% POWER SAVING ON THIS WINDER

From October 9th to 11th, 1918, this Foster cone winder at the Nyanza Mills, Woonsocket, R. I., fitted with six Hyatt Roller Bearings was tested against a similar machine fitted with ordinary plain bearings.

These two machines were each loaded with an equal number of full cones of No. 26 single yarn and each machine driven separately and alternately by the same motor with equal belt tension and under the same atmospheric conditions.

In both the plain bearing test and the Hyatt Roller Bearing test, the power consumption of the motor alone was measured and subtracted from the total power input. This gave the power consumption of the winder. The power readings were obtained on the charts of a recording watt meter and speeds were determined by a hand speed counter and a watch.

The results of this carefully conducted test showed that the HYATT ROLLER BEARINGS EFFECTED A POWER SAVING OF 13 %.

This worth while power saving was accomplished by the use of only six Hyatt Roller Bearings; on a completely Hyatt equipped machine winder the saving would have been much greater.

At forty to fifty dollars per horse power a year a 13% saving in power amounts to a considerable sum.

In addition to the power saving qualities of Hyatt Roller Bearings they are of great value in textile machinery because of their dependability and their durability which enables them to give highest grade of service year in and year out with a minimum amount of attention.

Specify Hyatt Roller Bearings for your textile machines.

1908

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Recovery of by-products as Benzol, Toluol, Napthalene, etc.
Manufacturing from these products the various intermediates required.
The manufacture of the dyes themselves.

Second: a careful standardization before delivery. This insures uniform shipments so that the user can depend on his colors always coming to him the same.

Third: the policy of "quality first" always, plus the determination to build a permanent 100% American Dyestuff industry.

Our line of colors is now so extensive that we do not publish a list of products but invite your inquiries.

With quality goes service also and our laboratories and chemists are at your service for the submission of your problems or your samples for matching.

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Notes About Men You Know.

JAMES A. BRANEGAN, who has been appointed by the Government as vice-president of the Heyden Chemical Company, Garfield, N. J., which was seized under the alien enemy act, is declared to have a most pleasing personality. In Philadelphia he is technical representative of the General Chemical Company. Since his appointment to the new post by A. Mitchell Palmer, Alien Property Custodian, Mr. Branegan has been spending much time in going over the affairs of that concern. His position is really supervising director at the works. He declares the plant is in fine condition and no changes have been made. At present no changes in the staff are contemplated.

One of Mr. Branegan's principal interests is that of the Kali Manufacturing Company, 1408 N. Front Street, of which he is president. The concern manufactures hydroxy oil, which is an invention by Mr. Branegan. It is a textile oil made from American vegetable oil to take the place of those heretofore made from castor oil.

He also invented the Branegan combined acid syphon and pump for the safe removing of acids, tetrachloride of tin, fuming liquids, aniline oil, oleum and ammonia. It is made of glass and pure rubber, and has no complicated parts. His acid pump invention and hydoxy oils are embraced in his literary works: "The Scientist of Prehistoric America."

Mr. Branegan is a fine example of a self-made man. Born in Brooklyn, N. Y., in 1873 he attended the public schools and graduated from Brooklyn High School. He then took up a five-year chemical course at the Pratt Institute of Technology. After graduating he then went through a special two-year course in organic chemistry under Dr. A. C. Langmuir. Following this the young chemist entered the laboratories of the Martin Kalbfleisch Chemical Company, Brooklyn, N. Y. There he remained until 1899, when the company was emerged with others and the General Chemical Company was formed. Realizing the ability of Mr. Branegan, officers of the new company immediately appointed him technical representative, a position which he has held ever since.

In 1911 he was awarded the Eugene Widman medal for orignal chemical research. This medal is awarded every two years. One of Mr. Branegan's works which led to his receiving the award was his discovery of the rapid deterioation of arsenic and arsenical pyrites. During the last few years, Mr. Branegan's work as technical representative of the General Chemical Company kept him away from the laboratories to a certain extent, but he built one of his own at his home. It is well equipped, and much important work has been done there.

Mr. Branegan is chairman of the Membership Committee of the Philadelphia section of the American Chemical Society, and with him in this position the membership has doubled within the last three years. He is a member of the Chemists' club of New York, the Engineers' Club, Philadelphia, auditor of the town of Millbourne, where he lives; member of the Society of Chemical Industry, of England, and of the Chemical Alumni, Pratt Institute.

How Other Men Manage

Practical Discussions by Cotton's Readers on all varieties of Mill Subjects

Even and Uneven Work.

EDITOR COTTON:

Even and uneven work comes in for quite a lot of discussion. Every carder has his own individual idea of the different causes of even and uneven yarn or roving, and what causes it and the way in which the individual carder thinks is the best way to get over it. I would, therefore, give each individual writer the benefit of the doubt, because of his location, his mill surroundings, and the working conditions of his machinery and the conditions in which he has to produce the roving. Some have not got the benefit of supplies, the grades of oil that he would naturally be pleased to use, the privilege of having his room at the temperature which at all times he knows is best. All these things have got to be considered. Very often a man writes of his experiences and never states the surroundings in which he gets the results he writes of, consequently there is a lot of criticism at times, simply because these conditions are not made clear in the articles.

Handling a card room, to be successfully accomplished, must deal with the conditions as they are in the location in which the mill is located. Some may be built where there is a lot of outside humidity, and some are built where there is a tendency to a dry atmosphere surrounding the mill; it will be seen at a glance that those two mills will have to be handled differently, and all those things must be taken into consideration.

I once had a card room on the bank of a good sized river, then, at another time, one by a good sized creek, now I have one that is on a high ridge that is not subject to much outside humidification. I find that all these have to be handled differently. In the one I now run I can stand the windows open very extensively; the one on the big creek not quite so much; the one on the river we had to be very careful and wait until the sun was up pretty high before we could open very many windows. This was owing to the "fogs" and the evaporation of the waters from the streams.

All these things are included in conditions, and have much to do with the evenness of the roving. The humidity of the room must be on a uniform scale to produce even work and we very often let the humidity, or the dryness get the upper hand of the room before we realize that it is so. This is more the case of late than formerly owing to labor conditions. With the present condition of labor, the overseer tries to keep as near in touch with his help as is possible to do so, to avoid any misunderstandings that may arise and to cope with the situation at the point of origin. In doing this he will lose sight of some things that he ordinarily keeps close tab on.

The individual carder can soon learn at what temperature his room runs the best and then keep it as near that as is possible. If he has humidifiers he can soon learn to regulate them to the best advantage. Modern humidifiers have an automatic regulator on them and when kept in proper working order, after having set them, will keep the room in the right condition as far as humidity is concerned. This being done, the next thing is to regulate the working conditions of the machinery.

I will take a few short cuts through my card room on experiences with keeping numbers. To begin with I have automatic springless scales. These scales will tell the weight when we lay the lap on them. These laps are taken off the finishing pickers and weighed and none to go to the cards that are not up to the standard of weights. My variation allowed on the finishing pickers is one-half pound on each side of the standard weight; should the standard be 50 pounds, then we would allow them to pass that weighed 49½ to 50½ pounds. Keep the laps at this weight through all kinds of weather. Some carders prefer to change the weights with the different changes of the weather, but this is confusing and the weigher will not know just when to reverse back to the old standard. Furthermore it's a guessing issue most of the time.

Keep the laps on the aprons half-and-half full laps this will give a regular weight as near as possible. Gauge the evener belts so that they will run in the center or nearer to the large end of the cones on the pickers, taking good care that these belts are kept tight.

The laps must be handled with care until they are put in straight on the cards and not "lapped in" on the lap that is running out. Have the cards as sharp as possible, and set up to the best advantage. Keep them stripped out as often as the conditions call for, and this can soon be determined by watching the slivers; when they begin to look "nappy" and with more trash than was the case when they were first stripped out, it's time to again start stripping—usually twice per day with a card doing about 160 pounds with middling cotton.

Drawing frames also come in for quite a lot of argument as to changing the draft gears to keep the numbers for the card room. In 1894 to '99 I had to deal with the railway heads and at this plant we used to weigh the sliver at this point and keep the weights regulated as much as possible, then at the roving frames, where we had intermediates, and then at the fine roving frames we would weigh and keep numbers at both points, and change gears when we though proper, at either.

But the railway head has been discarded in most all mills, and only in mills where fine numbers are made are the intermediates used, so we are now sifted down to the drawing frame, slubber and the speeder (roving) frames. It's all right to weigh the sliver at the drawing frames, but I do not think it the best place at which to make a change, for it's only the condition of the humidity that causes it to get off from the standard, and the same thing will cause the roving to get off at the roving frames; when

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one is off the other is also off, and I have always had the best results from changing at the nearest place to the spinning, then I can catch it all at once and not have different weights coming in behind the roving frames.

The roving frame gears are usually, for draft gears, from 30 to 50, the crown gears 100. In changing here I have my crown gears to work with and this makes the changes 1/100 instead of 1/30 to 1/50, thus causing it to make a much less variation on the weight of the roving in the changes. I have them made from 98 to 102 teeth. They are a little more inconvenient for the section man to change, but it makes much more even roving and has less effect on the tension of the frames. In my opinion one of the main features in keeping roving from stretching, is to change so as not to affect the tension any more than we can help. Of course, tensions are more or less affected when the roving becomes light or heavy, for they are regulated when the roving is weighing correctly and any variation from this weight causes them to get wrong, but in regulating the tensions to the change of a crown gear which has from 98 to 102 teeth, the weights are not enough to cause any defection in the roving, for we very seldom have to change more than one crown gear in the draft.

In keeping numbers in the card room, it is done much better after we have all the machinery set, and the stock run through, and the yarn made, then we can arrange the different points to our liking. Not until the yarn is run through, and we get a general average on the situation, is it possible to tell for sure just what it should be at the different points. Then, when this is done, it very often has to be rearranged owing to one machine over-running another in production. When this happens, the drafts of the machines that are not keeping up in production will have to be shortened, or some machines will have to have their drafts lengthened, as the case may be. Therefore, the principal thing to keep track of is the setting of the machines, the weighing of the laps on the finisher pickers, and the condition of the humidity, (it is taken for granted that the oiling and cleaning, etc., is done rightly), and there will be but slight variations in the roving.

In speaking of humidity, one might say there was no humidity on a hot dry summer day. There may not appear to be any, but that is largely where the head work comes in. Windows can be left open at night, and gather enough humidity to last through the next day, even though there is a hot sun shining, but to do this it is necessary to close enough windows in the morning to save enough moisture to keep the work going good. With artificial humidity at hand a man has little excuse for not keeping the room adjusted to the required conditions suitable for the work in hand. When a man gets accustomed to what a room requires, he can tell by walking through the room whether it is about standard or not.

When a different grade of cotton happens to get in and change the weight of the roving, as it will in spite of the best cotton grader in the business, it can be caught and the change of the crown gear makes the graduating scale of attenuating the slivers to their regular desired weights so close that the different weights do not affect the tensions on the frames to any great extent.

Oiling of the top rolls has a lot of effect on the evenness of the roving; having the ends wrapped the same number of times around the flyer pressers is essential to evenness of roving; when an end breaks down and stays down for any length of time the end should be broken back and not be made to run by taking a wrap off the presser, or by putting a chunk of waste underneath the clearer cloths to force a pressure down on the top rolls to keep the end from slacking down, as this will cause heavy roving.

T. A. D. (Ga.)

Save Power.

The power developed in the engine room is distributed either by mechanical or by electrical transmission. In both uses there are certain unavoidable losses. The loss or misuse of steam within a mill or factory is just as fatal as the waste of coal in producing that steam. Consequently, savings of coal can be effected only by taking up the manufacturing establishment as a whole, beginning with the unloading of coal from the cars and ending with the shipping of the manufactured product.

Space does not permit the many items I would like to discuss in this letter. However, it seems particularly apropos at this time to give special attention to the numerous mistakes that are being made when making ring spindle banding. I know that every reader of this department is just as anxious to save coal as the writer, therefore, it will pay to study the following which may help a bit in licking the Hun.

It will be noticed especially in the summer months how many ring frames will stick on starting. In some cases to such an extent as to require reversing the tight pulley a quarter or more. Almost every spinner to a man will tell you that it is the weather, which is true, and the same applies to the hard running of the ring frame throughout the day, but what is the cause? The writer has spent much time in solving the question, and following is the formula: The trouble is all due to the making of bands from yarn instead of roving. A band made from yarn has not the same elasticity as a band made from roving. This may look unimportant to many, but if the following test is made it will be discovered that it is one of the best points in the saving of coal. Band a frame with bands made from roving and next band a frame with bands made from yarn, next try and turn the cylinder by hand and you will be surprised at the difference.

Wash (N. H.).

Running Uneven Staple.

EDITOR COTTON:

I have in hand a letter from the agent of a large northern cotton mill as follows:

"We are running sample stock; the length of the staple varies from 1⅛ inches to 1¼ inches. We are having trouble with hard ends. This is the fifth week of a struggle with such conditions. As we know you to be a contributor to the textile press, could you suggest a remedy? We are willing to mail you a handsome check for any information that will help us."

I thought my answer to the foregoing would prove good dope for the readers of this department. It follows:

"In running 1⅛ to 1¼-inch or longer staple, set the first and second rolls as close as possible, this means the bottom steel roll and leather top rolls. Take all weight off the middle rolls. It is the only way to run uneven staple."

Wash. (N. H.)

SCIENTIFIC LUBRICANTS for SCIENTIFIC LUBRICATION

Old fashioned lubricants are just as much out of place in your mill as old fashioned machinery

TO keep pace with competition, your mechanical equipment must be up to date.

And what is true of your machinery is equally true of the lubricants you use. They must represent *the last word in scientific lubrication.*

Slo-Flo, the scientific lubricant for textile machinery, cuts down operating costs by cutting down friction. Unlike grease it does not have to be reduced to lubricating consistency by the moving machinery. Hence no loss of power in starting up.

Yet Slo-Flo will not run and drip, leaving bearings dry and oilless.

Again, it does not "throw," even at high speeds. This means an abatement of the stained goods evil, one of the bugbears of the textile industry.

There are a number of other reasons why Slo-Flo is the lubricant you should use—chief of which is its economy.

Write for booklet

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The Scientific Lubricant for Textile Machinery

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Atlanta, Ga., Fulton Supply Co.
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Greenville, S. C., Carolina Supply Co.

Put up in Bbls., half bbls., 50 lb. cans, 25 lb. cans, 10 lb. cans, 5 lb. cans.

Industrial Housing.

(*Continued from page* 140.)

After the completion of the exterior wall in this manner, metal lath is applied to the inner surface of the studs and plastered in the usual way for interior work.

Stucco dwellings constructed in this manner are absolutely permanent, fire-resisting, sanitary and repair-proof. Solid cement walls can not burn and they thoroughly protect the wood studs from any possible damage from an exterior conflagration. If metal lath is used on the inner surface, the possibility of fire from the interior of the house is greatly reduced and likewise the preservation of the plaster and any decorations that may be applied thereto is assured.

There is no possible chance for vermin to gain access to the spaces between the supporting studs or to the openings between the joists in a stucco house of this type. They are easy to heat and maintain in all climates, and in all seasons. All percolation of air through the exterior wall is absolutely prevented, and the only maintenance expense necessary is for the occasional repainting of the exposed wood trim, which generally consists of the window frames and door frames only.

APPLYING THE CEMENT TO THE METAL LATH CONSTRUCTION. HOUSING PROJECT NO. 4, U. S. SHIPPING BOARD, ST. HELENA, MD.

In a community of dwellings of this type, a general conflagration is absolutely impossible and reduced insurance rates are readily obtained and the necessity of an elaborately equipped fire department is eliminated.

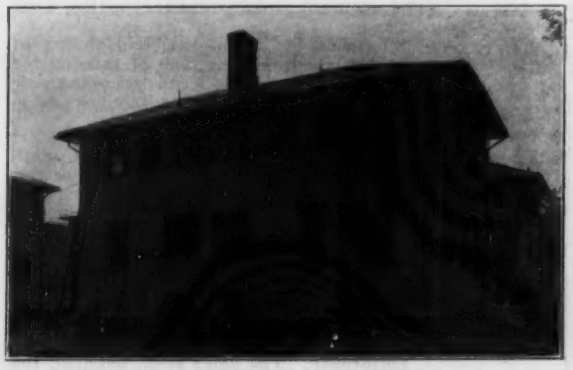
Any architectural treatment desired may be readily secured and a slight variation in color effect is easily secured by coloring the cement mortar or adopting one of the well known stippled or pebble-dash finishes.

Metal lath is the only practical base to which stucco should be applied and when covered with cement mortar is durable and permanent. Many examples might be cited where stucco of this type has been in use for twenty-five or more years without having cost the owner one cent for repairs, except the periodical painting of his wood finish. Walls and metal lath are crack-free. Freedom of cracks

A COMBINATION OF STUCCO AND SHINGLES.

in stucco construction can not be assured unless metal lath is used as a stucco base.

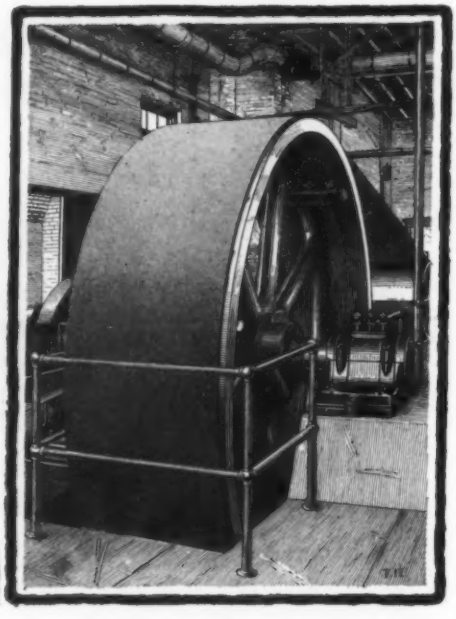
The durability of stucco on metal lath is due to the fact that metal lath is not affected by moisture and does not expand and contract like wood. Its ratio of expansion and contraction from temperature alone is almost identical with that of the cement plaster covering and protecting element, and for this reason plaster should never be applied to any base other than metal lath.



A TYPE OF DOUBLE HOUSE CONSTRUCTION.

Dwellings of this type have been adopted in recent years, for some of the most important industrial operations that have been built, and the selection of stucco was made, in each case after carefully considering merits of all different types of construction and after considering the architectural possibilities and the general upkeep expense of the entire community.

"Economical Handling of Coal and Ashes" is the title of a fifty-two page booklet by Henry J. Edsall, M. E., and recently published by the Link Belt Company, Chicago, Ill., and known as their book No. 353. It is printed on heavy plate paper nicely illustrated and contains a great deal of information for those interested in coal storage and handling. A copy may be secured on request.



Put a Belt as Good as this on *Your* Pay Roll

This Graton & Knight 40" 3-ply Heart Brand Belt is five years old. It has been running on heavy duty for the Milford Light and Power Co., Milford, N. H. The cost of this belt in cash has been $1.81 a week, or .004 per delivered horsepower per week.

Put a belt as good as this on your pay-roll. Its low cost of upkeep is the result of Graton & Knight Standardization. That means the proper belt for any given requirement. It means the right quality of leather and the right kind of tanning for a given purpose. It means true economy —full delivery of power without waste.

Leather is the ideal belting material. It has a characteristic pulley-gripping quality. It has pliability with light weight. It has the stretch and the comeback that gives and takes. It stands mauling by shifters and the gruelling strain of main drives. It is firm and strong. It is tough, but tractable. These are the characteristics that good belting must possess.

Every year nearly 300,000 hides are tanned in the G. & K. factory. That gives uniformity. The more stock handled, the more latitude there is for picking equal-quality material for a given specification. And G. & K. tanning is of a fixed standard of quality for specific requirements. We make all kinds of leather belting for every use—large and small.

Load carried and conditions of operation must figure largely in the length of service of an belt. Some drives limit belting to a few months or even a few weeks. Graton & Knight Standardized Series Belts are made to give the longest possible delivery of efficient power at the lowest possible cost. And they do it. It may be that belts all look alike to you—and it may be that you are spending more than is necessary for some belting requirements. We can and will help you find out.

Many of the best belted plants ask us to specify the belting for every drive. Try the plan yourself. Then, when buying, call for "Graton & Knight —— Brand or equal." This won't commit you to buying our belts. It will put your buying on the one basic consideration—the work to be done.

Write for new book about Standardized Leather Belting

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LEATHER BELTING
Tanned by us for belting use

GRATON AND KNIGHT

Reducing Coal Handling Costs.

By using a storage battery truck fitted with a one yard capacity V-dump body to haul coal to boiler house and store yard, coal handling costs have been reduced about 50 per cent by a carpet manufacturer of Philadelphia.

Coal is unloaded by gravity from railroad cars into bins

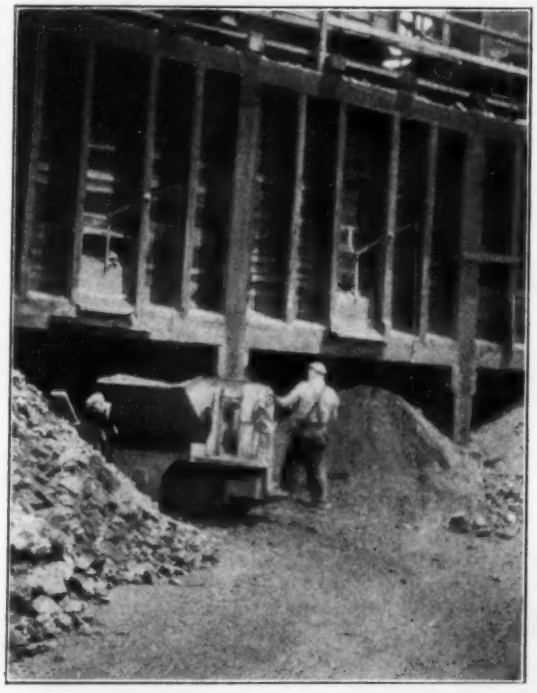


FIG. 1. ELECTRIC TRUCK LOADED BY GRAVITY IN EIGHT SECONDS.

fitted with radial gates. This arrangement is illustrated in Figure 1. The truck is loaded in eight seconds with a ton of coal simply by opening a bin gate and allowing the coal to drop into the V-shaped truck body. When the loading was done by hand it took five minutes to do this work.

In the morning the truck hauls coal 300 feet to the boiler house. In two hours sufficient coal is hauled to keep

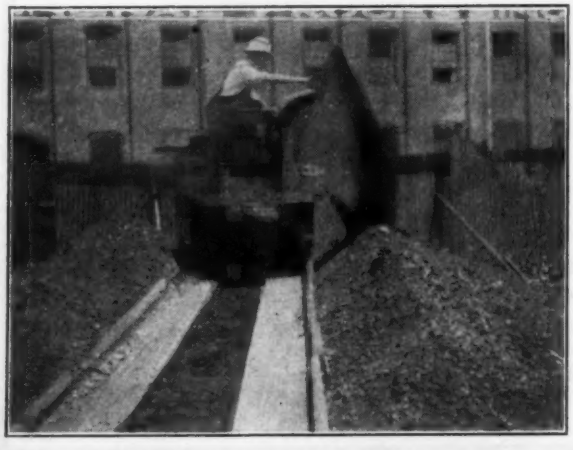


FIG. 2. TRUCK DISCHARGES ONTO STORAGE PILE.

the boilers going all day. The truck then carries coal from the bins to the storage pile. With this method about 20 tons can be handled per hour.

The haul from bins to storage pile is about 115 feet each way. The loaded truck makes the trip from bins to storage pile in 45 seconds. The return trip (empty) is made in 35 seconds. The load is discharged in 10 seconds.

To enable the truck to get on top of the storage pile (Fig. 2) a runway was built, as shown in Fig. 3. This is raised once a day so that coal can be unloaded on either side. The truck drives with all four wheels and has no difficulty in negotiating the comparatively steep grade.

By using this method railroad cars are released quickly and demurrage charges avoided. The storage battery truck,

FIG. 3. RUNWAY ENABLES TRUCK TO CLIMB STORAGE PILE.

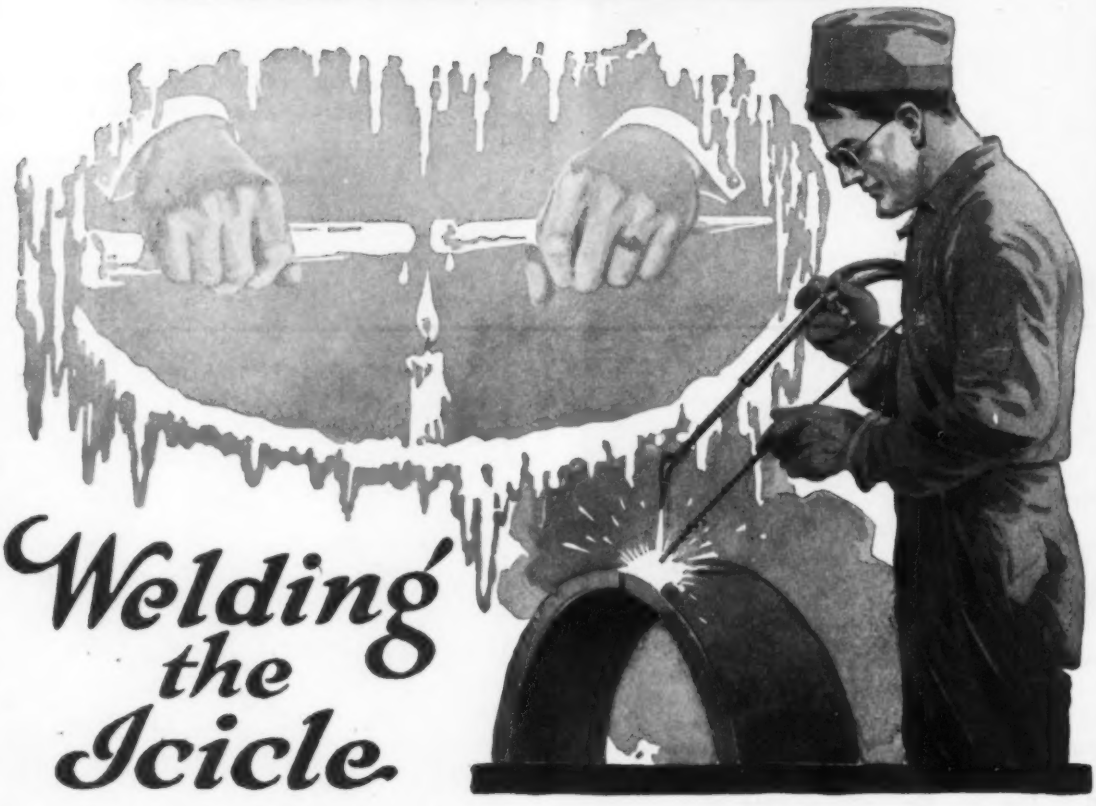
moving heavier loads in less time than is possible with man power, keeps the receiving bins empty so that coal can be unloaded just as soon as it is received.

Analysis of data on several recent installations shows the daily operating cost of a Lakewood storage battery truck to be $3.35. This does not include wages of the operator. It does include mechanical maintenance charges, interest and depreciation on machine, lubricants, storage battery maintenance and charging cost (based on two cents per kilowatt hour.)

This truck, used by C. H. Masland & Son, Philadelphia, and is manufactured by the Lakewood Engineering Co., Cleveland.

The Dary Ring Traveler Company, Taunton, Mass., Manufacturers of spinning and twister travelers, are sending out to the trade a holiday souvenir in the form of a calendar for 1919 carrying an illustration of the "Old Oaken Bucket" in a suitable environment.

Oxweld



Welding the Icicle

BREAK an icicle some snappy zero morning; thaw the broken ends a little over a candle; then let them freeze together. . . . You have welded the icicle!

That's the way oxwelding works on broken metals.

At high temperature, metals are liquid like water at ordinary temperature. Ordinarily—at the temperature at which you use them—the metals are "frozen" solid. . . . A break occurs; you melt the surfaces of the break with the terrific heat of the oxwelding flame; you remove the flame, and the broken parts "freeze" together as before the break happened. That's oxwelding.

Every time you throw away a broken metal part at your plant you throw away that much cash. For the new part you buy is not a whit better than the old part after oxwelding. *The new part may cost you 300 dollars; the oxwelded good-as-new old part—300 cents.*

Write to us for bulletins showing the advantages of oxwelding in your industry

OXWELD ACETYLENE COMPANY

NEWARK, N. J. CHICAGO LOS ANGELES

World's Largest Maker of Equipment for Oxwelding and Cutting Metal

188

Going After Latin American Trade.

BY S. G. WHITEHEAD.

The star salesman of the Unexcelled Hosiery Company was making his first trip to South America seeking to introduce the products of his company. Unable to speak any language but English, he makes his first acquaintance with Portuguese at Bahia, Brazil. After a brief seven hour visit, on which he was accompanied by his friend, Mr. Buyer, who was traveling on the same boat, he secures a sample and some information on the hosiery handled and returns to the steamer.

After dinner, when the Vasari was enroute for Rio de Janeiro the two friends, Buyer and Salesman, were seated on deck in the open air cafe talking over the experiences of the day.

"I have been wondering," said Salesman, "what is the reason for the existence of the city of Bahia. It seems to be a city of considerable size, located miles from anywhere, with few steamers which call. How do the people exist?"

Brazilian customs laws, as they apply to a salesman's sample case, are somewhat peculiar to say the least. In this issue Mr. Whitehead has explained the method used in their calculation and how such tariffs are collected.. This is only one of many details that must be understood by manufacturers proposing to enter the export field.

"Business is summed in one word," responded Buyer, "tobacco." Bahia is one of the greatest ports for the export of tobacco in the world, and previous to the war, millions of dollars worth of that article were shipped to Europe. This trade has fallen off considerably since shipment to Germany has become impossible but a great quantity is sent to Holland at this time for the manufacture of cigars. What did you find out about the hosiery business?"

"I have learned," observed Salesman, "that even here in out of the way Bahia, the American salesman is distrusted and his goods questioned. I spoke with one merchant and his first question was, 'Do you really carry samples of the actual product of your factory or are they merely a special line to attract the buyer?' Is the reputation of the American manufacturer really so bad as painted by some of our critics?"

"That," replied Buyer, "is something I cannot say, as I am out of your line, but I have always heard criticism of the North American manufacturer and I feel that there must be some grounds for it. This being your pioneer trip I expect the Unexcelled Company will establish a different reputation and prove the exception amongst North American manufacturers."

"That is exactly what I intend to do," emphatically stated the salesman; but little did he realize the task before him.

The few days voyage from Bahia to Rio de Janeiro passed in the same monotonous way as those previous, and had it not been for the relaxation and the invigorating sea air the journey would have seemed rather a bore. The night before reaching Rio the two friends were seated on deck discussing future plans.

"How long do you expect to stay in Rio?" asked the buyer.

"More or less, two weeks," replied Salesman. There is a Royal mail steamer from England about that time and I expect to be in a position to take passage on her. How long do you expect to be in Buenos Aires?"

"Oh! about two months," said Buyer, "I shall possibly stay at the Plaza Hotel while there. I expect to receive my mail at the office of the American Express Co., so if you cable me the steamer you are coming in on I will arrange to meet you."

"Fine," agreed the salesman, "I had heard of the Savoy Hotel as being very good, but if you find the Plaza is more convenient, I will join you there."

"The Savoy is good," admitted the buyer. "In fact it is one of the finest hotels in South America, but the Plaza is the favorite hotel with North Americans and so I figure we should find there a more congenial crowd."

"By the way," continued Buyer, "what are you going to do about your sample cases in Rio? Do you intend to take them all into Brazil and pay duty on the contents, or do you intend to let some of them go on to Buenos Aires to await you there"

This was a point overlooked by Mr. Salesman, who immediately went in search of information from the Purser.

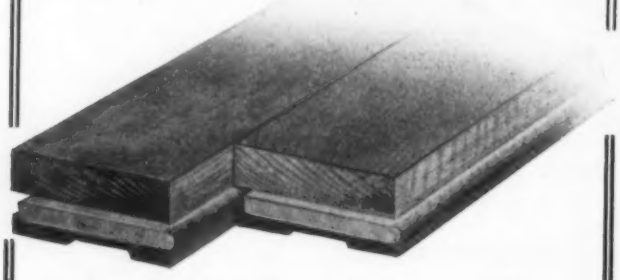
Unfortunately the Purser was not very well posted on Brazilian customs laws pertaining to salesman's samples and could give no information. He did advise, however, that Mr. Salesman would do well to employ a good customs broker to assist him and suggested that he leave all his cases in the custom house until such party could be located.

SUPERIOR BRAND Maple Flooring

SUPERIOR BRAND

Helped Win

Efficiency, concentration of effort, speeding up, co-operation, all were elements in the winning of the war. Superior Brand Maple Flooring in hundreds of busy plants throughout this broad land co-operated through speeding up production and the increasing of efficiency, to the successful end of the great struggle. Peace brings us new problems,—supplying the needs of the entire world. Are you ready to do your share?



Now Is The Time For Replacement

With a lull in operations during the re-adjustment to a peace basis, now is the time to put your floors in shape to meet the heavy demand which is surely coming. Smooth, sliverless floors are essential to maximum production in your plant.

Why Your Choice Should Be "Superior" Brand

The best is generally cheapest in the long run. There is so little difference in cost between inferior maple and the excellent "Superior" Brand that you can't afford to let the price stand in your way. "Superior" Brand goes down smooth, stays that way,—gives lasting satisfaction.

Your Needs Quickly Supplied

Our output is enormous,—we are in position to take care of your requirements promptly. Our large Chicago warehouse always carries an immense stock on hand.

Write today, or better, wire for delivered quotations any size, any grade, any quantity, anywhere.

NASHVILLE-HARDWOOD FLOORING CO.

1534-1544 SOUTH WESTERN AVENUE

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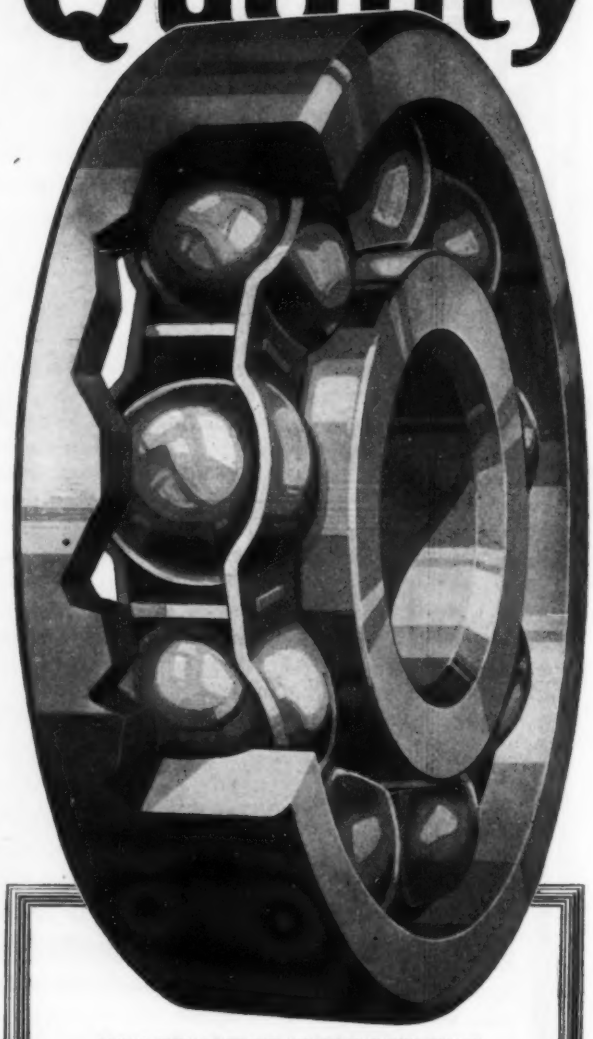
Manufacturers of Hardwood Flooring and Hardwood Lumber

Quality



NEW DEPARTURE SINGLE ROW TYPE.

Chrome Alloy Steel
Accurate Dimensions
High Efficiency Service
Quality Throughout

The New Departure Manufacturing Company,
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Conrad Patent Licensee.

New Departure Ball Bearings

This sounded like good advice and Salesman decided to ascertain if his old counsellors, The American Express Co., were established there. Reference to his record showed that they were represented at that time by the Express Federal, a highly reputable concern, and he decided to ask their assistance on his arrival.

The following morning was misty and everyone on board the steamer awoke with the feeling that they would be deprived of the magnificent view of Rio and its surroundings which is so amazingly impressive to the traveler who sees it from the deck of a steamer entering port. However, towards noon the mist cleared away and when the steamer passed through the entrance to the harbor, Mr. Salesman stood on deck speechless with admiration at the wonderful panorama presented to his eyes. To properly describe the wonders of the entrance to the harbor of Rio de Janeiro would be impossible. The steamer enters between the two forts which guard the harbor and before one's eyes opens a view such as cannot be duplicated in any part of the world. It is like the entrance to an inland sea surrounded by high mountains whose jagged summits seem like a regiment of soldiers guarding the city which nestles at their feet. The Sugar Loaf mountain arises in the foreground, the summit of which can now be reached by a small car which passes from a neighboring peak by the way of a wire cable, during which trip the passengers are suspended over an abyss hundreds of feet deep. The sunny shores, mysterious little islands and the wonderful tropic vegetation all blend into a picture which leaves the traveler robbed of speech and wondering if the human mind can really appreciate to its full extent the magnificence of it all.

Mr. Salesman, having made all preparations to leave the steamer, was highly interested in this first view of the city in which he would make his initial effort to market the goods he carried. He had made his customs declarations the previous evening and had been careful to show therein all the samples carried, having learned from conversation and investigation that many salesmen had met with considerable delay and heavy fines on account of a lack of frankness in the declarations.

Slowly the dock was approached and it was possible to distinguish the waiting crowd along the water front, eager to welcome their arriving friends.

At last they were alongside and after farewells to friends on board Mr. Salesman passed down the gangplank, after his passport had been examined by an officer, and found himself in the hands of the Brazilian Customs authorities. With little delay his hand baggage was passed and all other cases left for future attention. Discussion with the inspectors was impossible, but he found them ever courteous and very ready to help him in his difficulties. Once through this stage he passed with his friend, the buyer, to the street and found a line of automobiles awaiting the visitors, one of which they hired and proceeded to the office of the Express Federal for information regarding the city and how best to pass the time during the few hours that the steamer would remain in Rio before proceeding to Santos, enroute for Buenos Aires. Straight up the Avenida Rio Branco proceeded the auto and the visitors were surprised to note what a beautiful wide avenue this was. Fine large stores were on each side and there seemed to be an unending stream of taxi-cabs passing up and down the avenue, which was crowded with shoppers intent upon the varied classes of merchandise displayed in the windows of the many large and beautiful stores which have been erected on the city's main thoroughfare. A few minutes' run in the machine landed the two friends at the office of the Express Federal and Mr. Salesman presented to Mr. Stevenson, the Director of the company the letter of introduction given to him by the American Express Company representative in New York.

After the usual inquiries regarding the voyage had been answered Mr. Salesman requested advice as to the clearance of his samples and also as to the points of interest which might be visited in the short time at the disposal of Mr. Buyer.

"My first suggestion," said Mr. Stevenson, "would be that you join me at lunch when we can talk over the matter in a much more congenial way."

This invitation was accepted with pleasure on the part of the two visitors, who had anticipated, with some degree of uneasiness, the prospect of ordering lunch in a Brazilian resturant without the aid of an interpreter.

They adjourned to a dining room which was located just off the Avenida Rio Branco, where an excellent luncheon was served.

"Where do you expect to stay while in Rio?" asked the director of Mr. Salesman.

"The Hotel dos Extrangeiros," was the reply. "Do you recommend the hotel?"

"It is one of the best in the city," advised the director, "and I believe you will be well satisfied with the accommodations offered. I should be glad to accompany you there and arrange booking for you, but hardly think it necessary as the manager speaks English and you will have no difficulty in making your own arrangements. I will send your baggage up there this afternoon. Now, I would suggest you hire an auto, which you can arrange for by the hour, and take a trip through the suburbs of the city. It would be unwise to endeavor to visit Sugar Loaf or Tijuca as your time is too short. Regarding the clearance of your goods, that can receive attention tomorrow morning.

Luncheon being over, the two friends, following the advice of their temporary host, hired an auto and started on a tour of the city and its suburbs. On leaving the city they were surprised at the quantities of wonderful tropic vegetation on all sides. The trip took them up the Avenida Rio Branco along the Avenida Beira Mar out to the beaches of Leme and Capacabana, past the Country Club, back to the Botanical Gardens and through the Avenida de Palmas. The chauffeur was very ready to point out the various places of interest but owning to his inability to speak English his efforts were of little avail. The trip ended at the dock where the steamer lay and here the two friends parted to meet again later in Argentine.

Mr. Salesman then went to his hotel where he was soon comfortably settled, procured an early dinner and was glad to retire for a good rest after the day's outing.

Next morning bright and early he was at the office of the Express Federal. In discussing his business with the Director of that company, he asked first of all if there was a law permitting the entry of salesmen's samples into Brazil without full payment of duty.

"I am glad to say" answered Mr. Stevenson, "that after

Have Your Starch Made to Order

Here is the solution of your starch problems, both now, under the present trying starch situation and in normal times.

The solution which means efficiency that will help reduce operating expenses and increase output. This efficiency is necessary to better meet changing trade conditions.

For the days of old-fashioned wasteful administration are forever passed. War-time complications may pass, but peace will bring keener competition.

Now is the time to have a conference with one of our textile starch experts—at your mill, at the hour and day you name.

Our knowledge of the starch business co-ordinated with your knowledge of the textile business and the absolute needs of your mill will produce wonderful results.

Douglas Textile Starches

The Douglas Company has perfected a standardized line of mill starches unvarying in quality and texture.

These starches are absolutely free from gelatinized particles, crustings or other foreign substances. Each is 100 per cent pure.

We can supply, from stock, all grades of modified starches, alkali thick cooking starches and all regular grades of neutral starches.

Other mills are now profiting by our expert and specialized service. You should at least learn what we offer.

A call from one of our experts does not put you under any obligations whatever. Appoint the time for a conference **now.**

DOUGLAS COMPANY, Cedar Rapids, Iowa

Manufacturers of Corn Products

much effort on the part of the United States officials here, the government of Brazil has passed a law to facilitate the entry of salesmen's samples into this country without full payment of duty. This law requires that a bond be given in Rio de Janeiro by some responsible company, such as my own, before clearance is effected, to provide against any misuse of the privilege by unscrupulous salesmen such as sales of samples, etc. The broker effecting clearance of the samples must file a petition with the collector of the port, which must be accompanied by a complete list of the articles and also a Consular Invoice which must have been certified to by the Brazilian consul at point of origin."

"But," objected the salesman, "I have no such consular invoice covering my samples."

"In that case, explained Mr. Stevenson, your entry will be more difficult to arrange, but possibly the difficulty can be overcome. As for the charges, they are as follows: Duty of 5 per cent of the official value of the goods. Port tax, storage, discharging tax, handling fee, statistical tax and stamps. These fees in your case will be unimportant.

"In addition to all these a bond must be given for the full amount of the duties collectible on the goods under the regular tariff.

"The goods entered in this manner must be re-exported inside of 60 days or the full duties will be collected. However, it is possible, sometimes, to get an extension of time from the Collector of the Port."

"In the case of the small fees mentioned in regard to clearance," inquired the salesman, "would you mind explaining them a little more clearly?"

"With pleasure," replied Mr. Stevenson. "Port Works tax is collected on all merchandise, except coal, entered at ports where the Brazilian Government has built or is building docks at national expense. The charge is 2 per cent of the valuation of the goods, and is payable in gold.

"Storage charges depend upon the length of time the goods are held in the Custom house and are assessed as follows:

"Up to 30 days..... 1% of official value in paper
"Up to 60 days..... 3% of official value in paper
"Up to 90 days..... 6% of official value in paper
"Up to 120 days.....12% of official value in paper

"Above 120 days 3 per cent of the official value for each 30 days in excess of 120 days. Discharging tax is 1½ reis per kilo (one thousand reis is about 25 cents U. S. currency.)

"Handling charge on packages up to half a ton might amount to five reis per kilo. (2⅕lbs.)

"Statistic charge on each package of 220 pounds or less, is ten reis each package. On packages over 220 pounds the tax is ten reis for the first 220 pounds and five reis for each additional 220 pounds or fraction thereof.

"Stamps are fixed at 2$300 each entry or about 60 cents U. S. currency."

"What is the difference between gold and paper as referred to in your remarks?" questioned Mr. Salesman.

"The proportion between gold and paper is fixed by the Brazilian Government on the following basis: One thousand reis gold or, as it is referred to in Brazil, a gold milreis is equal to one thousand six hundred and eighty-seven reis paper," was the director's reply.

"All duties are payable on the basis of 40 per cent gold and 60 per cent paper of the *ad valorem* value of the merchandise, which means that an article valued at $100.00 U. S. currency would be figured at the government rate of exchange (4$120 to the U. S. dollar) as being worth four hundred and twelve milreis gold. If the *ad valorem* rate of duty is 5 per cent the calculation would be as follows:

"$100 U. S. × 4$120 = 412$000 nominal value.
"412$000 × 5% advalorem = 20$600 nominal duty.
"20$600 × 40% gold = 8$240 gold.
"8$240 gold × 1$687 = 13$900 paper.
"20$600 × 60% paper = 12$360 paper.

"Total duty paper .....26$260 paper.

"What is the advalorem on hosiery for customs purposes?" asked Mr. Salesman.

"Hosiery is assessed, not on a basis of value only, but on a basis of value as to weight. For instance the tariff shows a value on silk stockings of 50 milreis per kilo and razao (or rated) 60 per cent. This ratio of 60 per cent is used in calculation of the Port Works charge and storage charge. Supposing you import 100 kilos of silk stockings in a box weighing 20 kilos you have a total weight of 120 kilos. Then the charges are as follows:

"100 kilos at 50$000 = 5000$000 nominal duty; of this you must pay 40 per cent gold and 60 per cent paper.
"40 per cent × 5000$ = 2000$ gold.
"2000$ gold × 1$687 paper = 3374$ paper.
"60% × 5000$ = 3000$ paper.
"Total duty = 6374$ paper.

"In the Port Work charge, the value of goods is assumed to be 50$ per kilo, ratio 60 per cent which means that 50$ is 60 per cent of the value per kilo for all other purposes outside of duty assessment. Therefore, the full value would be 83$333 per kilo. 100 kilos × 83$333 assumed value; 2 per cent of this 8333$300 for port work tax equals 166$660 gold. This reduced to paper at the fixed rate of 1$687 equals 281$150 paper.

"In fixing the storage charge, 1 per cent of the assumed value, 8333$300 equals 83$330 paper.

"The discharging charge is figured 120 kilos at $0015 per kilo equals $180.

"The handling charge; 120 kilos at $005 per kilo equals $600.

"The statistic charge is 120 kilos at $0001 per kilo equals $012.

"The stamp charge is fixed at 2$300 per entry.

"The following summary will perhaps make it clearer to you:

"Duty	6374$
"Storage charge	83$330
"Port works	281$150
"Discharging charge	$180
"Handling charge	$600
"Statistic charge	$012
"Stamp charge	2$300
"Total	6741$572."

"The matter is complicated to such an extent," said Mr. Salesman, "that I think I will leave the matter of clearance in your hands."

(*To be continued.*)

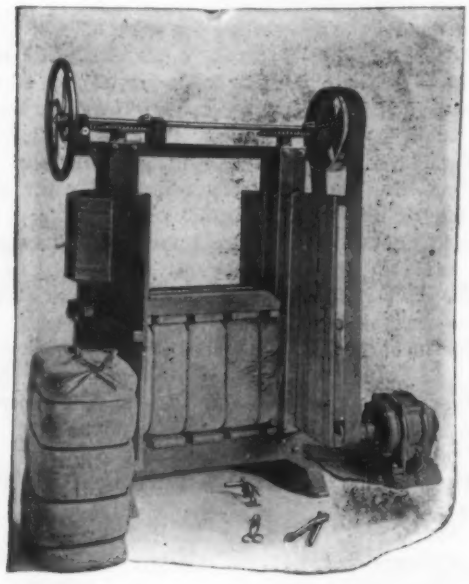
[Editor's Note. In order to make the figures given by Mr. Whitehead in this installment a little clearer to the average reader the following information from COTTON for February, 1916, is subjoined.]

The monetary system of Brazil is nominally based on the gold standard. The milreis is the gold unit. It is divided into 1,000 reis. It weighs 0.89645 grammes of gold .917 fine, or say, .82207 grammes of fine gold, and its par value in terms of U. S. currency is $0.5463. $1.00 U. S. currency, is therefore, the equivalent of 1$831 gold milreis. The sign $ for milreis is placed after the units and before the decimals.

The circulating medium, and the only legal money in Brazil, consists of government notes guaranteed redeemable at the rate of 16d per milreis; this rate being maintained through a conversion fund known as the Caixa de Conversao. The theoretical unit of the paper circulation represents 0.32444. The par value of $1.00 U. S. currency is, therefore, 3$08226 expressed in terms of Brazilian paper currency. Naturally the rate of exchange varies somewhat from time to time.

A New Baling Press.

Rapidity and efficiency are two features which enter largely into the operation of a baling press. The Torrance rapid baler, it is claimed, has these features and is built to stand the use and abuse of long and severe service. One hundred bales per day of ten hours is given by the manufacturers as the speed efficiency, while the density



and appearance is all that could be desired from a press of this character. It is of heavy construction and all gears and shafting are located overhead out of the way of the operative. It is gear and screw driven and positive in action, being particularly adapted to the baling of textile mill products. This press is manufactured by the Hercules Manufacturing Co., of Bennington, Vt., who will be glad to furnish further information upon inquiry.

"Do not forget that the cripple has the same self-respect and feeling of independence that you have. It is his ambition, as it is your ambition, to support himself and those depending upon him."

Truck "Minute Man" a Real Help.

"Hello, Bill. How's the truck running today?"

"All right, as far as I can see," answers Bill.

"Let's have a look under the hood," and the motorcycle truck patrol service man lifts up the hood and makes a critical inspection of the motor, kneels down on the pavement, looks up at the bottom of the crank case, gets up, pulls on the fan belt and finds it has stretched until it is a little loose.

"I will take up this slack in the fan belt a little bit and that will help your cooling," says the truck patrol man.

He quickly and expertly makes a complete inspection of the remainder of the truck, fills out a blank in his book, waves his hand at the truck driver, "So long, Bill," and is on his way to the next truck.

Allen Baker, president of the Federal Motor Truck Company of St. Louis, recently inaugurated what has already proven to be one of the most satisfactory methods of truck inspection yet devised.

A competent mechanic was provided by Mr. Baker with a motorcycle with a side car. He starts out early in the morning on a regular route, visiting the downtown wholesale districts, commission stores and the produce markets, then making the round of the local section. Every place on his journey where he finds a Federal truck—and there are four hundred or more of them on the streets of St. Louis today—he stops with a brief salutation to the driver, inquires how the truck is running and makes his expert inspection of the truck without holding up the haulage work appreciably.

A blank pad, which he carries with him continually, and which he fills out for every truck inspection, provides a complete record of his work. Three kinds of checkings are used on the different items—"l" where same was inspected and found satisfactory; "o" where the part required attention and was adjusted on the spot, and "x" to show what in his judgment required attention

Each night the motor truck minute man as he has been called, files these blanks. In the morning his previous day's file is gone over and a letter written to the owner of the truck, calling attention to the adjustments made on the road as being part of the Federal truck service to owners. If there are items which require especial attention, the owner is notified when his truck can be taken care of in the service station and he is requested to leave the truck there at that time if possible. In cases where the work of the truck is essential for government or other important haulage, then a service truck owned by the Federal Truck Company of St. Louis is given to the owner to use while his truck is being put in shape. At times there are as high as seven service trucks out being used by Federal owners in this manner while a broken axle, a bent frame or taking up of bearings is being accomplished.

The main idea of the motor truck minute man or patrol is to keep the Federals running at maximum capacity without lay-ups and to make the adjustment before breakage occurs.

That the owners appreciate this service has already been demonstrated. Another end it accomplishes is to keep the work in the service station so scheduled that the men can work to best advantage and the work turned out with speed and care.

KNITTING SECTION

The Attention of Manufacturers of

WOMEN'S HOSE

is invited to our new

Fashioned Welt Machine

MODEL K

This machine produces women's hose with an inturned knitted welt similar to that produced on full fashioned machines. The machine has all the features of our other models—each stocking being dropped from the machine complete, except for the looping of the toe. It is fitted with five yarn changing fingers, inserts an "anti-runback" course, and, the welt being knitted on the machine, has all the elasticity of the fabric and may be made as wide as desired.

Write for samples and further information

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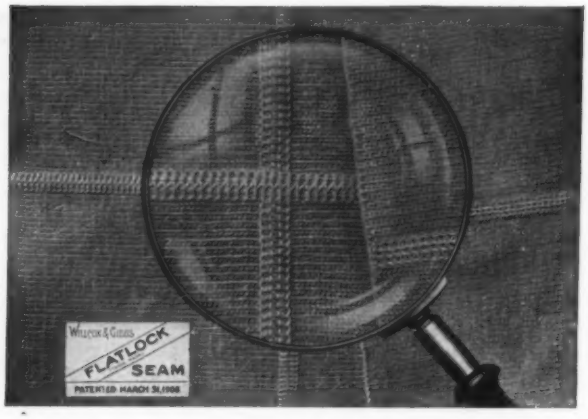
THE NEW ERA *of* RECONSTRUCTION



With the last salvo of artillery on Nov. 11th the World War came to an end and the new era of reconstruction began.

This great change affects not only the political relations of many nations, but their commercial life as well.

Greater attention must now be paid by those who make and those who sell knit underwear, to the building up and maintenance of civilian trade by the study of fabrics and their finish into garments to meet the discriminating tastes of the wearer.

Let us resolve from this time forth that American goods shall be known the world over as the best type of merchandise, by embodying in the products of our plants all improvements that will make our merchandise a better article for the merchant to sell, and for the consumer to use.

The Flatlock Machine is the latest important improvement in the Knit Underwear industry. The superiority of the Flatlock Seam upon its introduction was quickly recognized, resulting in its instant adoption by the United States and Great Britain for the soldiers and sailors.

When Flatlock seamed knit undergarments are shown to prospective civilian customers, they, too, are led at once to see the possibilities of greater service and comfort in a seam that is flat, thin, soft and strong, as well as elastic, and that will not rip nor ravel.

While formerly a seam, only approximately flat, was made in TWO operations, today, an absolutely flat seam (as thin as the fabric) is produced in ONE operation on the Flatlock Machine. This, of course, is an *economy to the manufacturer*, and there are already over 200 mills in the United States, Great Britain and Canada using Flatlock Machines and ready to supply knit underwear seamed with the Flatlock Seam.

The Flatlock Seam will help materially to sell the product of *your* plant because it makes better merchandise for both merchant and customers. The demand for Flatlock seamed underwear is becoming more and more insistent. Unless you are already using Flatlock Machines, you should investigate their merits.

FLATLOCK—"The Seam that Sells the Garment."

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Reg. U. S. Pat. Off.

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Willcox & Gibbs S. M. Co., Ltd., London, Paris, Milan.

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Knit Goods Men Meet in Atlantic City

Perhaps the most optimistic spirit discernable in any noteworthy gathering since business settled down for a rest following the signing of the armistice prevailed in the memorable meetings held in Atlantic City during the week of December 2 to 7. The keynote of the matchless addresses in the daily meetings of the War Service Committees of the Chamber of Commerce of the United States—meetings which have had no parallel in the history of the world—gave an inspiration for minor trade assemblages of the week.

Probably the most distinctive business unit session of the week was that of the National Association of Hosiery and Underwear Manufacturers, at the Marlboro-Blenheim. There was not even standing room for pessimism in the meeting of knit goods manufacturers. While the call for the meeting specified an executive session, it became expedient early in the discussions to throw aside formalities and extend the privilege of the floor to associate as well as mill members of the Association, as all elements seemed imbued with the one idea that business simply was waiting for business men to get into the trenches with the vigor and earnestness of the men who fought the battles culminating in the situation calling for a momentary halt for a survey of the new era whose dawn set in with the cessation of hostilities.

The presiding officer at this meeting was President T. H. Johnston, of the National Association of Hosiery and Underwear Manufacturers, and treasurer and general manger of the Knoxville (Tenn.) Knitting Mills Company. Southern manufacturers were conspicuous for numbers, practically every knitting centre being represented. Selling agents, and representatives of some of the leading machine, yarn and supplies houses also were in attendance, contributing to the flow of thought—all in one direction—pointing to a period of such prosperity that even the affrighted will realize that there is substantial compensation in store for the patient and prudent.

The attitude of the meeting was cleverly expressed by President Johnston when he said, "labor will be no cheaper for some time—not until living conditions have undergone a change. We simply must wait, not so much for reconstruction as for the readiness of our customers to buy or the necessity for their doing so. We cannot afford to cut or take any step calculated to have a demoralizing effect. Curtail rather than attempt to force. There is no cause for fear. Any undue yielding would be a show of weakness."

Supporting his optimistic view, President Johnston continued: "When the nations of Europe became embroiled in war we owed Europe $4,000,000,000. Today Europe owes us $8,000,000,000. We have fifty branch banks in foreign countries for facilitating the export business in which we will become engaged. The merchant marine which we are building up will empty this country of merchandise. The destruction of textile interest and buildings in France during the war amounts to $350,000,000. The peoples of Europe are dependent upon us for food and other commodities. The nations are hungry for merchandise and their hunger will become more acute as time passes and their wants become greater pending a restoration of shipping. We well may patiently await gradual readjustment."

There were necessarily references to reports of cancellations of orders in the first days of the scare, and it was brought out that some few buyers were resentful of the conduct imputed to them, while many of the orders which had been placed in the doubtful list were being reinstated. At the same time it was made apparent that cancellations had been overstated and were being reduced to a minimum, the attitude of an element in the distributing trade in the last two weeks of November was regarded as supplying reasons for more carefully safeguarding transactions in the future than as an immediate necessity. The sales manager of one direct-to-retailer mill reported that in its volume of business covering about 6,000 accounts, the cancellations were less than one-tenth of one per cent of the orders on the books. The sales manager was loath to believe that even among smaller and easily disturbed merchants there had been any general tendency toward repudiation of orders.

PRESIDENT T. H. JOHNSTON.

The executive of a large Pennsylvania mill was also doubtful that contracts of moment were being evaded, and said, "We have not had a cancellation and would not accept one, unless we were fearful of the financial responsibility of the customer trying to dodge his obligation."

A well-known southern mill selling to more than 2,500 retailers has had less than 50 attempted cancellations, and of these all were refused with two exceptions, the exceptions applying to dealers about whose financial soundness there was some question.

A direct-to-retailer mill at Philadelphia reported cancellations negligible. The hosiery buyer for probably the most extensive retail distributors in the United States said, in response to a question, "We have not cancelled a single order if delivery was anywhere near the date specified."

Profiting by past experiences, and with a view to bringing about a more united stand among manufacturers for guarding against cancellations in the event of repetitions

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BANNER

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FULL AUTOMATIC

HOSIERY MACHINES

SIMPLICITY — SPEED — PRODUCTION — QUALITY

Four important things to consider when buying Hosiery Machinery.

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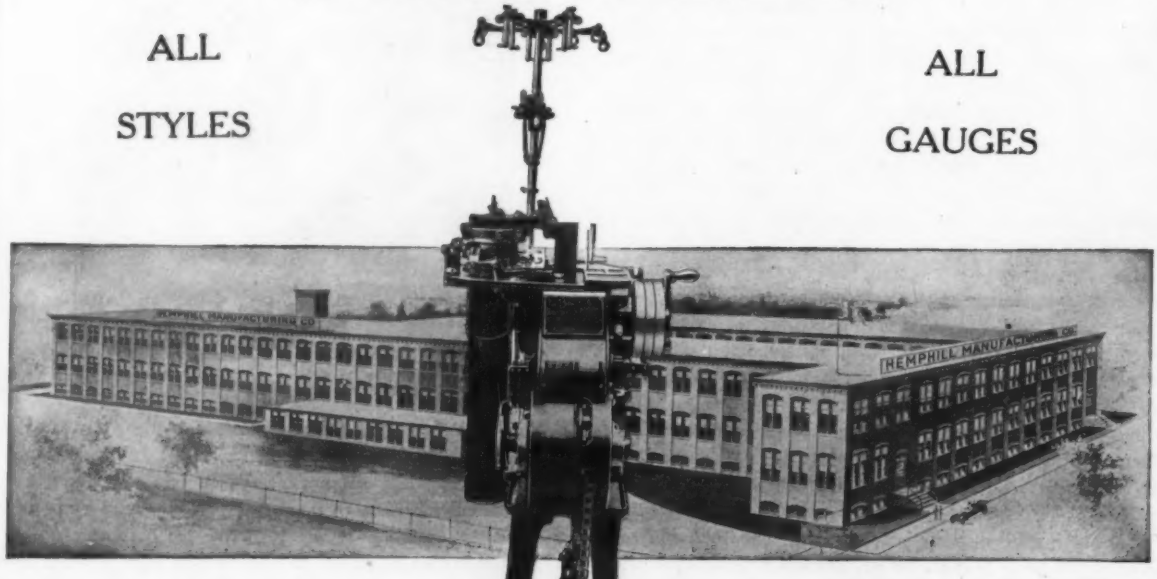
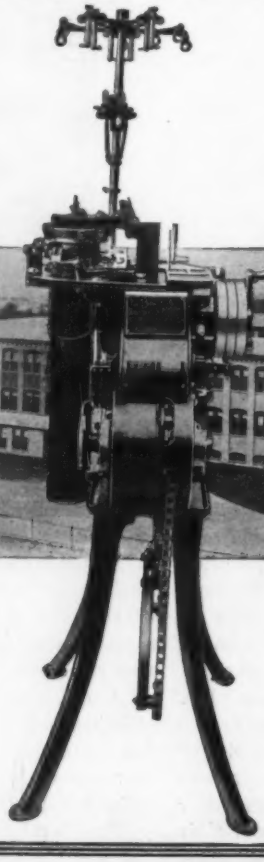
Write for full particulars and samples of work.

ALL STYLES

ALL GAUGES





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of ill-directed bear movements, the meeting adopted the following by unanimous vote:

Whereas, The National Association of Hosiery and Underwear Manufacturers, comprising the majority of the manufacturers of hosiery and underwear in the United States, was organized for the mutual protection of its members and their customers, and

Whereas, many members have suffered loss from cancellations of legally enforceable orders by their customers as well as by the return of merchandise, and

Whereas, the unjust practice of cancellations of orders and the return of merchandise are legally and ethically indefensible because they assure that an order may at the customer's option, be enforced against the member, but that the member may, at the customer's option, be denied the right to enforce an order against the customer, and

Whereas, it is the sense of this association that all reasonable and lawful steps should be taken to discourage and prevent both of these indefensible practices, now therefore be it

Resolved, that members of this association, when within the rights of their contracts, refuse cancellations or return of merchandise and in event of cancellations or threatened cancellations or return of merchandise the members affected take action individually, and through this association, to protect their interests to the fullest extent of the law.

On motion further made and adopted it was

Resolved, that for the purpose of carrying out the foregoing resolution in a practical manner, the following procedure is recommended:

That only legally enforceable orders shall be considered in connection with these recommendations.

That upon receipt of a cancellation or arbitrary return of merchandise, the member shall forward a letter to the customer refusing the cancellation or acceptance of returned merchandise, which letter should contain a copy of the foregoing first resolution.

That the secretary of the association shall be notified on a printed form of such attempted cancellation or return of merchandise and the secretary shall keep a record of all such notifications, which record shall be kept open for inspection by any member.

That if the foregoing is effectual in holding an order, the secretary shall be notified to that effect and shall record such notification.

That if the customer persists in cancelling or returning merchandise, the members affected shall notify the secretary of this association who shall confer with them to the end that the members may take action individually and through this association to protect their interests to the full extent of the law.

That in the event of the members being compelled to resort to litigation, it is recommended to the members that they employ the designated counsel of the association for that purpose, the charges of counsel in each case to be made to the association.

It was clearly evident that the meeting was more interested in preparing for the flow of business to come, than in what has gone through the mill or what was jeopardized by a few affrighted merchants undertaking to repudiate their obligations. "Go into the markets of the world while taking care of the markets at home" was the thought injected by several speakers, among them J. P. Quinlan of the National Association of Knit Goods Selling Agents, and Joseph S. Rambo, of Rambo & Regar, Inc., Norristown, Pa.

The feasibility of having a committee of the knit goods trade visit the markets of Europe for a study of the needs of the peoples on the other side of the Atlantic was suggested by C. H. Bacon, Loudon (Tenn.) Hosiery Mills, and the project received the approval of the meeting, in the adoption of a resolution of Mr. Rambo for the appointment of a committee of five manufacturers to confer with a committee of selling agents. Chairman Johnston appointed the following: Joseph S. Rambo, Rambo & Regar, Inc., Chairman; Frank L. Chipman, Charles Chipman Sons, Inc., New York; Jos. Feldenheimer, Roxford Knitting Company, Philadelphia; Robert C. Blood, John Blood & Co., Philadelphia; W. Park Moore, Hancock Knitting Mills, Philadelphia.

The stand taken by the meeting on the question of export trade brought a request that the privilege of the floor be given to Isaac Fred Harvey, New York, sales manager and superintendent for S. W. Hymans, Bradford, England, textiles. Mr. Harvey, whose office is in the Bush Terminal, New York, expressed some surprise that business interests in the United States had so long deferred the study of European markets, stating that conditions in this country were being carefully studied by trade scouts from abroad. "I can see great possibilities for American commerce in Europe," he said, "but I doubt whether you can compete with England in fine count yarns and the products thereof, for our spinners receive in wages about one-third of what is paid in the United States for the same work, and our overhead expense is lower. Furthermore, our spinners have more interest in their work. I was amazed while at a mill in Philadelphia to see everybody hurrying out at five o'clock in the afternoon. It was a scene that could not be witnessed at that hour at a spinning mill in Bradford."

Mr. Harvey predicted a good outlet in England for American-made cotton union suits, among other knitted articles, but, he said, you probably could not match us in worsted yarns, notwithstanding some of the inequalities in your tariff schedules." The speaker pointed out that yarns for which the raw material cannot be had in this country carry a heavier tariff than some types in which there is a distinct competition.

"You will have more to fear from Japan than from England," Mr. Harvey predicted, asserting that cost of manufacture in Japan is as much lower than that in England as costs in England are under those in the United States. "It would seem," he continued, "that separate tariff schedules for England and the Orient will be necessary for the proper protection of industry in America."

Japan, Mr. Harvey said, had sent a trade commission to the United States and undoubtedly would put her manufactures in the markets of this country to an extent that cannot but be felt by American industry. He dwelt on the importance of maintaining quality standards, and suggested that the committee which is to go to Europe visit Bradford for a study of conditioning and testing methods employed in the textile trades of Great Britain.

Mr. Harvey felt that it might be more difficult to treat with labor in the United States than in England. Here, he said, so many nationalities are represented in a single factory. "In one that I visited there were represented in the working force 42 nationalities," he stated.

"British buyers will be ready to take your merchandise just as soon as there are ships to carry it," said Mr. Harvey. "England wants to trade with the United States; we want your products; we want both nations to feel that they are going to be better friends than at any time in the past."

Mr. Harvey's remarks prompted Chairman Johnston to call on Congressman R. W. Austin, of Tennessee, who had been attracted to the Chamber of Commerce meetings and seized the opportunity to renew acquaintance with knitting manufacturers whom he had met at the Associa-

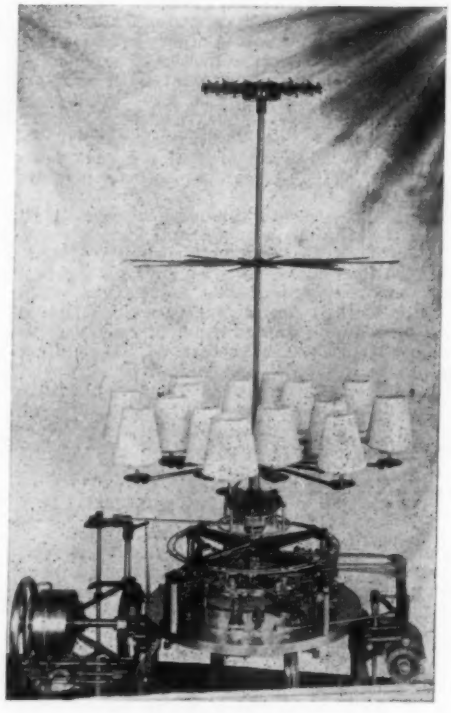
Wildman Style W. T. Stop Motion

The Ideal Stop Motion for Plating and all two thread work as it stops the machine when a yarn breaks at the carrier.

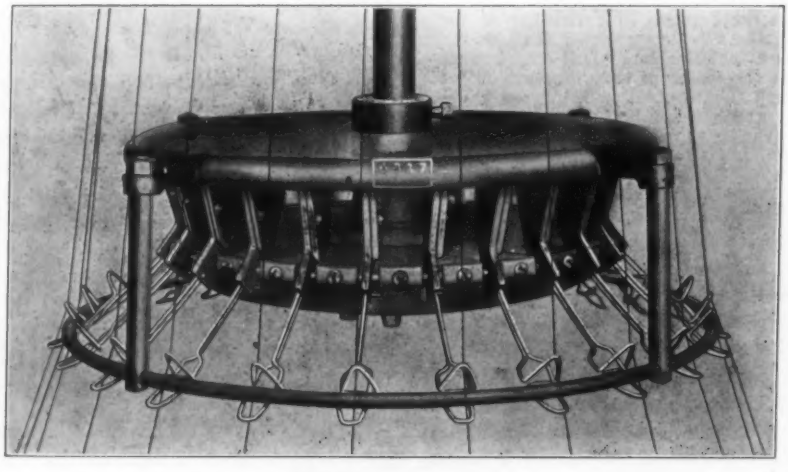
Easy to thread.

Not affected by lint.

Working parts very accessible.



On Machine



Tripping Mechanism

Can be applied to nearly all types of revolving cylinder underwear machines. Write for further information and prices.

WILDMAN MFG. CO.

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tion's convention in May last. Repeating a wish expressed by him in the convention, Mr. Austin said: "I hope some time to witness the election of a business man as President of the United States. There are too many politicians and not enough business men in the Senate and the House of Representatives. We could eliminate 95 per cent. of the politics, as we did during the war, and in casting about for capable business men for the positions of responsibility we could well forget politics—forget that we are Republicans or Democrats. Witnessing the achievements of the American business men during the war, when they marshalled industry as it never before was brought into a compact working body, it is readily conceivable what would be the effect for prosperity were the affairs of the nation placed in the hands of business men in times of peace. I hope we may be as seriously occupied with our responsibilities in the future as in the days of the struggle from which we have but emerged. The further we get away from partisan policies and the sooner we get down to economic policies affecting the happiness and prosperity of our people the better will it be for us.

"America," Mr. Austin continued, "has the greatest markets in the world, markets which belong first to the American business men and American laboring men, yet we have the lowest tariffs in our history, an average of but five per cent., in contrast with averages of 27 and 17 per cent. respectively under the Dingley and Payne-Aldrich Bills. I am a protectionist; I spent four months in Europe studying economic conditions, and know that under our present tariff schedules we will not be able to compete with those nations in our own markets.

"The merchant marine must be taken over by the government," Mr. Austin said, "if we are to compete on the seas with foreign shipping. In an American-built vessel costing say $1,000,000 the labor cost is $900,000, against $450,000 for a British-built vessel and $250,000 for one of Japanese construction. Under the La Follette Bill the wages of seamen on American ships are about three times what are paid on vessels of some other countries."

On the subject of cancellations of government contracts, for public welfare, Mr. Austin insisted that the quartermaster's department settle with contractors on a liberal basis as expressive of the government's appreciation of the performances of American industry in the war.

Several manufacturers whose contracts with the government were cancelled soon after the armistice had been signed reported to the meeting that settlements with the quartermaster's department had been effected on a fairly reasonable basis, and it was the opinion that if all contractors will supply proper information as to supplies remaining in stock and losses sustained in readaptation of machinery there would be little difficulty in obtaining satisfactory adjustments.

In response to questions injected by manufacturers having government contracts for hosiery and underwear, the following official declarations in the matter of cancellation of contracts were read:

In the event of cancellation of a contract with a manufacturer "two weeks" production will be allowed, based on the average weekly production of the two weeks ending Nov. 9th.

Deliveries will be accepted to March 1st on contracts, even though the contracted date of termination is prior to March 1st. That is deliveries may be made to March 1st against a contract calling for completion of deliveries by February 1st.

"As to the Government's attitude in the case where the contractor has notified a spinner to cancel the undelivered portion of yarns ordered for production on a Government contract, upon which the Government has requested discontinuance of delivery.

"To arrive at a proper settlement with a contractor, the Government must obtain full information regarding raw materials on hand, partly finished products on hand, and finished products on hand. In making proper settlement with contractors regarding commitments, the same data must be obtained by the contractor from the sub-contractor as is necessary for the Government to have in regard to the contractor himself.

In this regard, it should be known that the Government has taken steps directly with the spinners for the discontinuance of the manufacture of yarns for Government contracts."

The following official declaration as to wool was read:

"At the present time the government is issuing wool at the prices which have obtained for a number of months. Various plans have been discussed for the distribution of the wool stocks still in the hands of the War Department, but no final conclusion has been reached. Among the different methods suggested have been:

1. Unrestricted auction sales beginning in January.
2. Auction sales with the British issue prices as a minimum.
3. An embargo through the War Trade Board against the importation of wool into this country for the next six months.
4. The sale of the government owned wool at fixed prices.

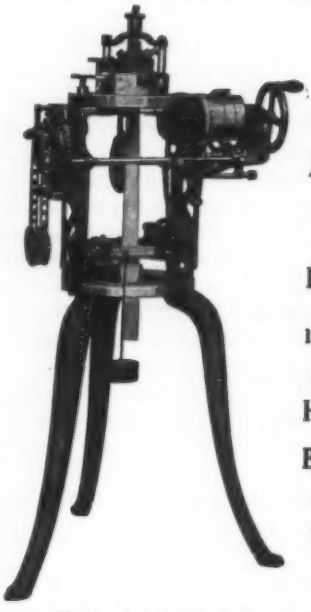
"There is a conflict of interest between clothing manufacturers who are now cutting up woolens for next spring's clothing, and the weavers—many of whom are out of business and who are hungry for a supply of wool at prices that will command immediate business. All parties interested have been given hearings in Washington, but the War Department has as yet announced no policy. In the meantime it is distributing wool to all who will take it at the present United States issue prices."

Cancellations of war contracts should have little effect on the market, was the opinion expressed by F. L. Chipman, for the reason, he said, that most of the government business was merely supplementary, and that in contrast with knitting mill production as a whole the loss of the government as a customer would not be seriously felt.

Admitting there had been a depression for several weeks, Mr. Chipman saw no justification for fear of a calamity. Referring to the lull which developed when the war broke in 1914, Mr. Chipman said, "shortly there will be as great a demand for our products as there was after a few weeks of disturbance beginning in August four years ago. I look for a repetition of the conditions which followed the depression then. We are assured an enormous export trade. I cannot see lower wages while the cost of living remains high, and therefore no materially lower prices."

Other speakers were in thorough accord with Mr. Chipman, and it was the thought that if, temporarily, there were indications of a greater supply of knit goods than the market was prepared to absorb it were better to cur-

H. BRINTON CO.



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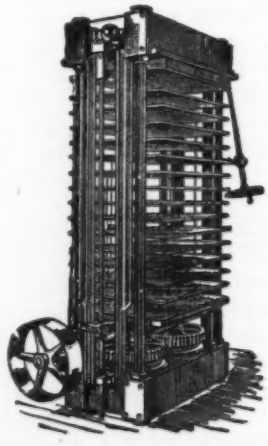

RELIANCE
Hot Plate Screw Press
FOR
Hosiery and Underwear
Write for Catalog and Prices
Reliance Machine Works
FRANKFORD, PHILA.

tail production to, say, 75 or even 60 per cent than undertake to force buying through ruinously low prices.

Jobbers as a class have been very fair in regard to taking in merchandise against old and recent orders, it was stated by a number of manufacturers, and little or no trouble with manufacturers within their legal rights was being experienced.

Reverting to the financial panic of 1907, a New York factor, speaking of cancellations of thousands of orders, mentioned a class of jobbers who took in the merchandise without cavil and paid for it, and by November of that year were short of merchandise. He looks for a similar situation a few months hence. Our people have money and will spend it, was his thought, but an offer of low prices at this time would not influence a single jobber to recede from his waiting position. "Later he will be with us, a shortage in his stock to be met by us. With each recurring season in the last few years prices have been a trifle higher. By easy stages they may become a trifle lower with seasonal buying, but there can be no intimation that a lower level can be reached while living costs remain so high. If mills had not advanced prices to the levels attained during the war many would have been financially ruined, for few were able to figure in their costs incidental increases that could not have been contemplated. The average buyer is not overstocked. They will want merchandise, and I predict that within the next sixty days we will be selling at or above the prices for our October, November, December, 1918, deliveries. We could spare ourselves some annoyance if we were not so impulsive," the speaker thought. "We are prone to be overenthusiastic in boom periods and yield too readily to fright. We need to do business on a basis of stability rather than impulse."

Other speakers along this line included G. Oberlaender, Berkshire Knitting Mills, Reading, Pa.; J. P. Quinlan, vice president of the Colonial Knitting Mills, Philadelphia and well known as a selling agent, and J. P. Voorhees, New York, representing a number of important southern mills.

One of the better known selling agents advocated investigation of every attempt to cancel, stating it was the sense of his Association that they would not care to do business with merchants who by reason of unwarranted rejection of merchandise or otherwise had proved themselves undesirable customers.

Unless an order bears the signature of a responsible person representing the buyer it is not such an order as will stand the test in a court of justice, was the stand taken by C. S. Andrews of the Dayton (Tenn.) and Spring City (Tenn.) Hosiery Mills, in advocating a universal form of contract couched in language about which there can be no misunderstanding in safeguarding the interests of seller and buyer. As a matter of fact, Mr. Andrews said, probably 90 per cent of the orders you take are not in reality binding orders. The order, and not the confirmation, should carry the buyer's signature. Therefore an order by telephone is susceptible of such a construction as the buyer cares to place upon it, he went on.

Referring to the English statute of frauds, taken over by this country many years ago, Mr. Andrews said that if its provisions were complied with in the acceptance of a contract much of the embarassment resulting from a buyers arrogation of the right to treat an obligation in his own way would be eliminated. "Stability is most essential to business security, Mr. Andrews continued. "This applies to all times and to the near future in particular. Until we make an order a contract we will not have attained stability. Now is the time to go on record for a standard form of contract that will hold.

"A common excuse for presenting a cancellation is the representation that the merchandise is faulty or does not conform to sample," continued Mr. Andrews, "as has been shown by some customers in taking in thousands of dozens of a given article and rejecting a very few cases on the pretext that they are 'not like sample.' We all should favor a proper form of contract in strictly legal form."

Mr. Chipman and others held to the views presented by Mr. Andrews, and after a general discussion of the matter it was directed that the executive officers of the Association proceed to draft a form of contract, to be passed upon by an attorney-at-law and submitted to members and others for their use.

It was the belief of President Johnston that the jobbing trade would approve a fair contract form, and it is probable that whatever is done by the Association's executive board will be done in collaboration with a committee of the organized knit goods distributing trade.

A convincing address on the cancellation evil and incidentally the necessity for a binding contract was delivered by C. R. White, of the Roxford Knitting Company, who saw no justification for late delivery if the Government in the exercise of its right to demand merchandise made civilian delivery impossible. However, he said, "we will not force goods on any merchant physically or financially restrained. I am advised by manufacturers that most of the cancellations were accompanied by no valid reason. The question is, on what kind of orders are we going to do business in the future? Optimists speculated in the past. They will do so again. For the protection of the seller in transactions with speculative buyers we must have a proper form of contract.

"It must be borne in mind," Mr. White continued, "that cancellation means the piling up of more merchandise in the great reservoir. When the reservoir becomes filled to overflowing the buyer will get at about $7.25 what he bought at $8.25 and threw back upon the seller—into the reservoir of merchandise I am thinking now of the future, not so much of what is being done now. Looking ahead, where can you buy yarns at prices to enable you to sell your goods under today's prices? It is not wise to let down the bars. To do so might invite a movement for forcing prices to levels at which manufacturing could not be carried on successfully. Don't forget that in the mind of every buyer there is ever present the hope that he can buy from you later, at lower prices, than that which he originally bargained for and declined to accept. If you will put your order on the plane of an order it will not be necessary to sell the same merchandise twice. I would favor having the Association go into court with a test case, for establishing a precedent."

As the meeting was purely democratic, the bars being let down to others than mill members, C. M. Plowman, of C. M. Plowman & Co., Philadelphia, cotton yarns, was called on for an exposition of conditions in the yarn

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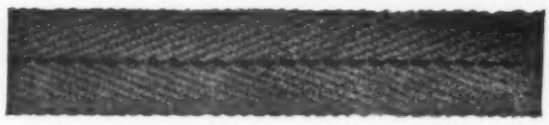

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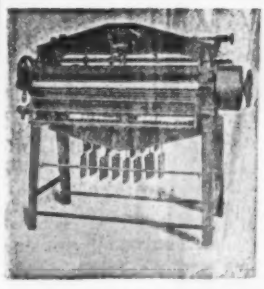

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trade. Mr. Plowman threw a bombshell into the meeting by asserting at the start, "Manufacturers, not spinners, are responsible for the demoralization in your industry. When the government found it necessary to recall some of the orders placed for army goods some of you found yourselves in possession of a surplus of yarns. Until this surplus has been disposed of there can be no yarn market. Some of you sold your surplus under the market. I see no boom in yarn for the next 30 or 60 days, but spinners cannot sell under the present basis of cotton at about 30 cents. Some day, and not far in the future, all of you will be jumping into the market, and you will buy as prices advance.

"I am optimistic as to the future," continued Mr. Plowman. "No one can beat the United States in individual competition. There is enough business in South America alone to give all of you a share."

Incidentally, Mr. Plowman looks for higher prices for cotton. It is recalled that his prediction in a meeting of southern knitting manufacturers in Asheville, N. C., in January, 1916, that cotton would pass 30 cents was more than realized.

The meeting adopted the resolution of the Pennsylvania Division of the Association at their session in Reading on November 22. These resolutions follow:

Resolved, That we buy no cotton yarns from spinners or merchants not selling on net weight basis.

Resolved, That the names of spinners and merchants offering cotton yarns on any basis other than net weight be reported to the National Association of Hosiery and Underwear Manufacturers, such names to be communicated to the members on their request.

By unanimous vote, on motion of Mr. Rambo, the meeting endorsed all of the resolutions adopted by the War Service Committees of the Chamber of Commerce of the United States.

The Year in Knit Goods.

A record in the knitting industries that has no parallel in any other country was made by the mills of the United States in 1918. While the initial steps for marshaling the units of this vast industry in such a war-winning movement as the world had witnessed were taken in 1917, their full fruition was not reached until during the first ten months of the year just ended.

The really spectacular achievements of the American knitting industry were its performances in relation to the war. In no other industry were the units so quickly and effectually organized. In a twinkling, almost, the virtual direction of production of knitted war equipment passed to government control. From the start there was patriotic acquiescence on the part of manufacturers. In the determination to give first consideration to the country, the civilian trade was sadly neglected. The suddenness with which contracts with distributors became practically worthless—for reasons beyond the control of industrial chiefs—necessarily precipitated many controversies between mill and merchant, which had their reversal the moment the world was apprised that the army no longer was a customer and that government contracts running into hundreds of millions of dollars were to be annulled. There was an over-night transition from the greatest market activity ever witnessed to as complete a commercial panic as ever prevailed. Within a month there was presented the two market extremes. The unprecedented high tide ebbed until a phenominally low had been reached, but attesting to the solidarity on which the knitting industry is founded, no wrecks strew the strand.

The magnitude of the tidal flow is best described in the figures relating to the war production alone. Some idea of the ebb is conveyed in the numerals expressing the quantities of knitted articles remaining in the warehouses of the quartermaster corps when the armistice was signed.

No more convincing or authoritative statistics as to production and facilities are available than those contained in the address of Lincoln Cromwell, Chief of the Knit Goods Section of the War Industries Board, who in May last said in the convention of the National Association of Hosiery and Underwear Manufacturers:

"Today the United States has contracts with over 400 knitting mills. It has paid them $75,000,000 in the last year, and has unfilled orders for underwear, hosiery and other knitted equipment valued at over $200,000,000.

"Our mills delivered to the Government last year 25,000,000 pieces of summer underwear, 25,000,000 pieces of woolen underwear (which was 3,000,000 more than had ever been made here in any other year), and an emergency purchase of 4,000,000 pieces of heavy cotton underwear. The hosiery mills shipped 11,000,000 pairs of cotton, 16,000,000 pairs of light-weight wool and 12,000,000 pairs of heavy-weight wool half-hose—this last, nearly double a normal year's business of the country. The glove knitters delivered 14,000,000 pairs of woolen gloves and mittens.

"For the current year the Government has bought 14,000,000 pairs of woolen puttees, 69,000,000 summer and 49,000,000 winter shirts and drawers, 28,000,000 pars of gloves, 38,000,000 pairs of light-weight wool half-hose, and 45,000,000 pairs of heavy-weight wool half-hose. These figures are combined from the buying of the Army, Navy and Marine Corps. They are no index to the military strength. They include a large reserve to be built up against any contingency, but I believe there has been no overbuying and that not only all the machinery now engaged on Government contracts is assured steady work for the duration of the war, but that we must constantly seek new sources of supply. Already we have taken more than half of the product of men's two-piece underwear and large lots from mills that formerly made only women's underwear, and it is likely that for the winter of 1919-20 the Government must have every piece of men's woolen underwear which can be made in America."

The extent to which knitting manufacturers relieved themselves of their obligations to the Government is set forth in part in War Department figures showing the quantities of knit goods in government warehouses on November 27. According to these figures there were in stock in the United States 24,285,815 summer drawers, 21,050,798 winter drawers, 27,075,892 summer undershirts and 14,427,280 winter undershirts, a total of 86,839,785 garments. There were in storage in the United States 46,113,244 pairs of heavy and light wool socks, and in France 13,000,000 pairs, a total of more than 59,000,000. In warehouses here and in France there were 8,586,830 pairs of spiral puttees and 9,165,846 pairs of knitted gloves.

It must be borne in mind that these figures apply only to the government's reserve stocks for the army, and do not include what remained for the use of the navy and the marine corps.

Between May, when Mr. Cromwell told of deliveries and additional purchases, and November, a lapse of only six months, the knit goods industry sustained perhaps the most severe jolt in its history.

In May Mr. Cromwell told his hearers that for the

winter of 1919-20 there probably would not be a single woolen garment in underwear available for civilian purposes. Eight months later, in December, the government held the first of its auction sales of government-owned wool, which had been accumulated for the emergency which it was predicted in May would have to be met. Fortunately for that part of the civilian part of the population which feels that it cannot endure cotton, it would appear that there will be wool garments for all, or, at any rate, limited only by mill capacity.

One of the more stubborn problems with which the knitting industry had to contend was that of labor. Operatives in either of a number of factory operations who had been content with the abnormally high wage scale of 1917 went into more remunerative employment in shipyards, munitions factories and other war industries. Mill forces were at times almost depleted, and it is one of the wonders of the year that employers, swamped as they were with government contracts, which could not be ignored except at the risk of inviting suspicion of lack of patriotism and accusation of profiteering, were able to so well take care of civilian needs. Labor has seen the flow and is likely to feel the ebb of the wage tide, for in recent days operatives who two months ago were indifferent as to the number of hours which they put in or the volume of their outturn, have been asking for work.

Little less confusing than the labor situation was the order of the Conservation Division of the War Industries Board applying to the packing of knit goods, eliminating in large degree the use of strawboard boxes. As late as November 1 the trade was semi-officially advised: "Knit goods may not be packed after January 1 except in strict conformity with the packing regulations.' ' Less than a month later the restrictions were completely removed, and mills sustained some loss, which, it seems, however, has been patiently borne as a part of the sacrifice which the industry had to make as its share toward the winning of the war in the shortest time possible and through a victory of the greatest possible significance.

Government control of cotton yarns, while causing some consternation at the outset, proved to be incident of little moment, other than to provide for a few controversies between mill and spinner, all of which were speedily adjusted. As a matter of fact, after the first show of victory for the spinners had vanished, maximum prices were scarce a factor in transactions, and were lost sight of immediately the armistice of November 11 was signed. Offsetting any advantage gained by spinners when maximum prices first were established was the announcement of December by the Price Fixing Committee of the War Industries Board establishing regulations and maximum prices effective until December 31 and providing that yarns be sold on a net weight basis, for which manufacturers had been contending for some time.

With the close of December government control of cotton yarns ceased. To what extent spinners will sell net weight will depend on the attitude of consumers of yarns, among whom there is a disposition to not recede from the vantage point gained after a prolonged and at times acrimonious struggle.

The story of the ups and downs of the knitting industry during the troublous war times and in the days that immediately followed the first tangible step toward permanent peace would not be complete without a reference to the sudden change of attitude on the part of the distributing trade.

For two years mills were being badgered and threatened in efforts to obtain deliveries of merchandise on order—deliveries that could not be completed for the reason that so great a part of the industry was engaged in the cause of the nation. In the last six weeks of the year many of the distributors who had been threatening dire vengeance for lack of performance were repudiating their obligations with the freedom of the banditti, with the result that there was more widespread confusion during two weeks of peaceful conditions than in eighteen months of warfare. Happily the light has dawned and hysteria given way to reason, and many of the orders that had been cancelled were reinstated, doubtless in the realization that the shock of peace could be no more prolonged than that of war, and that it were a time again for preparedness—this time for a new era of prosperity, and by the close of the year there was evidence of a renewal of activity in mill and market.

As has been observed, peace had to come some time; it came none too quickly, but industry was no better prepared for the transition than it was for world hostilities. While 1918 witnessed the attainment of the peak of production and prosperity it also supplied the reversal that was in anticipation.

Conspicuous among the signs of returning activity has been the demand for knit goods for export. Buyers from Europe have been here negotiating for stocks. This will continue, but not until there has been at least a partial restoration of adequate shipping facilities can the country expect to reap in full the harvest that is ripening.

At the close of the year momentous for unrestrained prosperity and demoralizing confusion there remained the adjustment of knitting manufacturers' contracts with the Government which, with the signing of the armistice, were annulled "for public welfare." By the time the foregoing review of the year's incidents in the industry have been read a basis of adjustment doubtless will have been formulated. It will not be satisfactory to all the interests involved, but it is a foregone conclusion that the government, mindful of the promptness with which the industry responded to the call for supplies and the measure of patriotism ever present during the more trying situations which developed from day to day, settlements with contractors in the main will be equable, and that the same spirit of forbearance which dominated during the war will not be wholly absent now that the guns have been silenced and the world is looking forward to a long period of peace among nations.

Readers of the Knitting Section of COTTON will be interested to learn that the editorial department has recently arranged for another series of articles to be prepared by the well known knitting authority, William Davis, M. A. This new series which will start in an early number will continue practically throughout the year 1919 and will, as in the previously printed articles, relate to subjects not ordinarily found in print. It is in the securing of entirely original matter on subjects that frequently call for a great deal of careful research that the reputation of COTTON among its old and constant readers has been built.

Western Knitters Meet at Chicago

Conspicuous among the several large trade assemblages during December was the meeting of the knitting manufacturers of the Central-west and North-west, under the auspices of the National Association of Hosiery and Underwear Manufacturers, at the La Salle Hotel, Chicago, on the 12th. The attendance was larger by far than that at any previous gathering of the distinctly knitting clans since the outbreak of the war save at the annual conventions of the Association.

Morning and afternoon sessions were held, and at each there was open and free discussion of phases of manufacture and distribution which have been the outstanding incidents of the trade since the signing of the armistice. Considerable time was devoted to the question of the government's disposition of the stocks of wool in its control. Notwithstanding the feeling of optimism at all times present, it was admitted that until this question has been settled there must be some hesitancy among manufacturers to operate.

Market stability, it was the unanimous opinion, will depend to a great extent on a careful handling of the wool situation. Prices of wool and the quantities to be released by the government from time to time must be known before either manufacturers or the distributing trade will feel free to operate. The outlook, it was suggested, was for an enormous demand for wool, this being supported by an official letter which was read to the meeting.

The prediction was made by a cotton yarn spinner that, while cotton yarns may not be in great demand for a month or two, prices would not go to any appreciably lower level than that now prevailing. Tremendous export business was regarded as a certainty, and cancellations, it was felt, would work no great harm except to interests repudiating their orders.

With the ban on the import of latch needles lifted, it was believed that the needle situation speedily will become easier, more particularly from the fact that domestic manufacturers promise an output equivalent to two needles for every one that will be required.

In carefully prepared resolutions the meeting called for the transfer of all government-controlled wool to the civilian trade at the earliest possible moment; approved of steps for giving employment, at remunerative wages, to United States soldiers returning from service in France crippled, and suggested the listing of merchants offering indefensible cancellations. The Committee on Resolutions as appointed by the chairman consisted of the following: Joseph H. Zens, Milwaukee (Wis.) Hosiery Co., Chairman; E. A. Clements, Globe Knitting Works, Grand Rapids, Mich.; R. N. Kimball, Black Cat Textiles Co., Kenosha, Wis.; R. E. Rollins, Des Moines (Ia.) Hosiery Mills; T. F. Thieme, Wayne Knitting Mills, Inc., Fort Wayne, Ind.; Thomas Tooley, Louisville Cotton Mills, Louisville, Ky.; P. C. Withers, Illinois Knitting Co., Mount Vernon, Ill.

This committee, late in the day, reported the following, all of which were adopted:

Whereas, The uncertainty of the wool market is having a depressing effect on the textile industries of the United States and threatens to put out of employment many thousands of operatives whose continued employment is vitally necessary to their comfort and happiness and the stability of the textile industries, and

Whereas, The British government has well defined plans for protecting operatives employed in the textile industries of the United Kingdom by keeping them employed at war-time wage schedules, and

Whereas, It is impossible, with the continued uncertainty prevailing in the wool market for either manufacturers or distributors of wool products to operate with any degree of safety, therefore be it

Resolved, That the knit goods manufacturers of the Central West and the North West assembled in convention called by the National Association of Hosiery and Underwear Manufacturers the twelfth day of December, 1918, in Chicago, recommend that the United States government dispose of the wool it now has on hand, and to be collected at the earliest possible moment and in as large quantities as may be possible, at public auction without reserve.

Whereas, Many of our soldiers who took part in the European war will return or have returned incapacitated for work in their former occupations, and

Whereas, Many of such disabled soldiers could be employed in the knitting industry to mutual advantage and at remunerative wages, therefore be it

Resolved, That the officers of the National Association of Hosiery and Underwear Manufacturers communicate with the Federal Board for Vocational Education, offering employment to such disabled soldiers as may be desirous of learning either of several operations in the knitting industry.

Whereas, It is recognized that the period of readjustment and reconstruction into which we entered following the signing of the armistice has precipitated a condition in which doubt, with respect to values, tempts some purchasers to evade delivery of merchandise for which they duly contracted and to return merchandise without cause, and

Whereas, Such practice is indefensible and unjust, therefore be it

Resolved, That the knitting manufacturers of the Central West and the North West in meeting assembled in Chicago this twelfth day of December, 1918, do deprecate such action and that the National Association of Hosiery and Underwear Manufacturers will, to the extent of the Association's ability, protect its members therefrom, and to this end endorses the appointment of a committee to review cases brought to the attention of the Association; and, it is further

Resolved, That, under advice of counsel, the names of buyers guilty of unfair cancellations be published for the information of all the members of the Association.

By a pure coincidence the meeting was opened and closed with messages from the President of the Association, T. H. Johnston, Knoxville, Tenn., Knitting Mills Co., and his immediate predecessor, P. C. Withers, Illinois Knitting Co., Mount Vernon, Ill., each bristling with the most optimistic sentiments. A letter from Mr. Johnston to the Secretary of the Association, said in part:

"I regret exceedingly that illness among members of our mill organization will prevent my attendance at the Chicago meeting. Will you please express at this meeting the personal interest I feel in the Central and North West. As the president of the Association I am just as anxious to serve them as I am to perform that duty for the South and East, and if it had been possible I would have arranged to be present. I know that the same degree of enthusiasm that prevailed at the Association's meeting in Atlantic City on December 6 will be present in the Chicago session, and could I be with you I would repeat, with added emphasis, what I said on the former occasion, and would seize the opportunity to lay stress on the valuable information received from the meetings of the War Ser-

vice Committees which during the war rendered such excellent service to the government."

Mr. Johnston's closing address at the Atlantic City meeting, the proceedings of which are printed elsewhere in COTTON were read into the proceedings and heartily approved as reflecting the sentiment of the knitting trade on the importance of steadiness—curtailment, if necessary, rather than demoralization of the market by undue haste.

At the request of President Johnston, D. L. Galbraith, World's Star Knitting Co., Bay City, Mich., occupied the chair, presiding at the several sessions. Prefacing his remarks with a happy reference to the utilitarian purposes of first and second vice-presidents, Mr. Galbraith said in part:

"A year ago, when we met here our problems consisted of finding sources of supplies of needles, dyestuffs and materials, all of us were staggered by mounting prices. In the last few weeks we have had cancellations to contend with and our problem was sales rather than purchases. Our present mill instructions are to discontinue manufacturing on Saturday night of this week."

It was announced that Taubel Brothers, hosiery, Philadelphia, would close down until January 1, and it was stated also that at least one mill in Tennessee would not operate until after the first of the year. This conforms to the idea of curtailment, and the prediction was made that in nearly every knitting center operatives would be given an unusually long Christmas holiday vacation.

With almost a year's supply of wool in control of the government, and a consumption of approximately 40,000,000 pounds per month, the meeting, in which were represented many underwear and sweater coat manufacturers, was interested in the question as to how the government proposed to operate in the release and distribution of the wool, and William J. Wright, Boston, of the American Woolen Company, was called on for his views.

"I undersand," Mr. Wright said, "that the government owns or controls about 340,000,000 pounds of wool, so that the 15,000,000 pounds to be auctioned during December is but a drop in the bucket. It is my understanding that the government does not control the 1919 clip and has no intention of taking it over. It is my impression that all mills are short of wool."

In answer to a question whether the government would permit the importation of wool, Mr. Wright said: "I understand the government intends to keep wool and raw materials of foreign origin out—that is, materials the importation of which might interfere with the government's wool business. It is intended to protect the wool industry."

It was apparent throughout the discussions relating to wool that manufacturers were ill at ease, in that neither they nor distributors can operate, except speculatively, until the price of the fibre has been stabilized and something definite is known as to quantities to be released by the government and the length of time for which foreign wools will be excluded. With enormous supplies of Australian wool under control of the British government, it was feared, England might enjoy a very great advantage in competing in the markets of the United States, in woolen fabrics.

Van Court Carwithen, Philadelphia, sole representative of the Swift Spinning Mills, Columbus, Ga., was optimistic from the standpoint of a cotton yarn merchant. He spoke of a fast developing export trade in yarns, for taking care of which, he said, there is probably enough yarn in New York for two months. He stated there is spirited bidding by interests in Australia and South America. Spinners, he continued, look for no violent drop in prices, although domestic demand may not be strong for a month or two. Prices, he said, probably would be maintained on about the present level, with perhaps insignificant fluctuations. "We believe," he continued, "that there is a good future for cotton yarn, and we are planning to operate abreast of our capacity."

Mr. Carwithen favored uniform shipping terms and was not adverse to net weight, with the understanding that the cost of packing would have to be figured in the price. Asked if the Southern spinners had taken action, Mr. Carwithen said, "They do a lot of talking, but I think they never take action."

Mr. Carwithen said his mill had not received a single cancellation of contract from western mills. "We do not accept cancellations," he continued, "but we always are willing to talk adjustment."

The chairman and Mr. Carwithen got into a discussion of the government's attitude in relation to yarns which contractors could not use because their contracts with the government had been annulled. It was Mr. Carwithen's understanding that spinner and manufacturer would be taken care of, but it was not made clear as to the course to be pursued. It was the understanding of the chairman and several speakers that the government would not be responsible to manufacturers for contract yarn shipped after notice of annulment of contracts had been given.

W. C. Reynolds, Harding, Tilton Company, Boston, Mass., who also spoke on the subject of cotton yarns, thought the country was about to enter upon an era of unprecedented prosperity. But, he said, "the future will be what we make it."

The only yarns to be had cheaply to-day, Mr. Reynolds continued, are what are known as distressed yarns. We have had to co-operate with our customers, in some instances, agree to deferred deliveries, he added.

When a comparison of notes in the matter of cancellations by merchants was made it was disclosed that while some mills have been asked to accept cancellations others had not heard of any such thing. It was thought the reputable merchants would either accept deliveries or seek adjustment on price or delay in delivery. Manufacturers who were in arrears with deliveries said they accepted cancellations gracefully, holding merchants to the terms of their orders, however, as to deliveries not yet due.

It was remarked by several speakers that merchants who during the war were boasting of their patriotism and taking goods in at prices above the contract now are among the first to repudiate their orders. It was apparent that there would be widespread antagonism of indefensible cancellations.

Mills selling the retail trade appeared to have had more trouble with cancelling customers than those selling jobbers, and in a number of instances retailers have been found pit-

ting one manufacturer against another in an effort to beat down prices.

Jobbers in possession of stocks acquired at low prices are reported conducting an active campaign among retailers who hitherto have been buying from mills, this affording the small dealers an unusual opportunity for contending with mills for price rebates or cancellation.

It was the concensus of opinion of all the speakers on the subject that the incidents of the past few weeks made apparent the necessity for a universal order form, the idea being to arrive at uniformity in contracts and establishing a precedent in a court of justice in event of a merchant undertaking to dodge his obligations on some flimsy excuse.

A common complaint among small merchants seeking to return merchandise is that shipments do not conform to sample. Without affording time or opportunity for inspection, these small merchants arbitrarily return the goods, although two months ago they were accepting everything that came in and were threatening manufacturers with legal proceedings when deliveries were past due. Frequently it develops, it was ascertained in the discussions, that merchants had overbought and sought to saddle the seller with the consequences of the blunder of a buyer.

One of the more spirited talks of the day was that of C. Walker Jones, of C. Walker Jones, Inc., Philadelphia, latch needles, who handled knitting manufacturers somewhat severely for what he termed their short-sightedness in not laying in supplies of needles two years and more ago when he told them the manufacturer who did not do so would be rated an idiot. "I have had a few cancellations of needle orders," Mr. Jones said, "and one manufacturer whose needles I bought not long ago since was compelled to close his mill and would have been glad to buy back, at an advanced price, the needles which I took off his hands."

Mr. Jones denied that the latch needle manufacturers of this country had exerted any influence to have the importation of needles restricted. "We have been too busy to think of such a thing," he said. We have been taking every pound of needle wire for which we contracted."

In concluding, Mr. Jones said, in answer to a question:

"I am going to do just what the United States Government wants me to do. If the United States is going to make peace with Germany and tell her we don't want any of her goods here, I'm not going to bring any of them in. Even if she does say she and Germany will exchange goods and Germany can send goods here, she's got to say it emphatically before I bring in any needles. It looks to me as though the industry is very much interested in the importation of needles. If statistics are right (I don't believe they are, I believe they are a little bit off) as near as we could get from your questionnaires and the plans made, the American needle manufacturer is going to make two needles for every one that is wanted, so I doubt if it will be necessary to import needles."

The following, under date December 9, from the War Trade Board to the Association, was read:

> Referring to your recent letter regarding a conference with a Committee of your Association to consider the scarcity of latch needles in this country and the importance of removing the restriction placed by the War Trade Board upon their importation, we beg to advise you that we hardly consider that such a conference will be necessary, as by a ruling of the War Trade Board the restriction on the importation of needles has been removed. The ruling becomes effective December 9, 1918. It will be necessary, however, to make application and obtain import license for all shipments of latch needles.

The afternoon session was taken up mainly with a discussion of the status of knitting mill government contractors in their relations with spinners as sub-contractors. Yarn interests held that they would look to contractors for an adjustment, losses incurred in such adjustment to be made a part of the contractor's claim against the government?

Mr. Withers said that at a conference in Washington with General Wood, acting quartermaster general, at which were present probably forty manufacturers, the matter of cancellation of contracts was gone over freely. The conference took place a few days subsequent to the signing of the armistice? General Wood was quoted by Mr. Withers as having said: "If you haven't cancelled your contracts with the spinners, you'd better get busy and do so before night."

This was viewed as indicating that the government would sustain a contractor's cancellation of a contract with a subcontractor. Mr. Carwithen, a spinner, says the government never used the word cancellation, and according to his contention contractors only will deal with the government, after making their peace with their sub-contractors.

Remarks conciliatory in tone and apparently having the approval of the meeting were made by J. J. Phoenix, of the Bradley Knitting Company, Delaven, Wis. Mr. Phoenix said:

"We are not cotton men primarily but we use some cotton. We are wool people and it has been our aim to attend the various War Industries Board meetings before and since the close of the war and to work with the Government on the settlement of these involved questions.

"Primarily the government of the United States is composed of just such a group of men as we are here, honest, sincere citizens of the United States. They are not apart from us they are of us. They are just as anxious to solve this problem, so as to continue business in the United States as we are, absolutely just as anxious to do it.

"These officials are taking the position that the Government of the United States has no use for additional supplies of hosiery, underwear or gloves, therefore their prime duty is to stop waste, because we have to pay for that waste in taxes. If they didn't stop waste they wouldn't be efficient servants of the people. I sat in the War Industries Board meeting two weeks ago Tuesday in Washington, where General Rose read to us what was termed the 'riot act'—the famous No. 111 Rules and Regulations.

"It was discussed by different men there representing the Government. And I want to say to you that there was an absolutely fair and just offer made by the Government to the spinners of America. It was a proposition that safeguarded every dollar of profits that we have made as spinners. It was a proposition that safeguarded every dollar of profits that we have made as knitters or weavers and it shut off any prospective profits absolutely, and that is right.

"One man said, 'I have got $13,000,000 worth of con-

tracts for yarn and I want to deliver every pound of it.' That man wasn't patriotic—he was a profiteer—he or anybody else that will take that attitude—willing to sacrifice the United States for personal gain.

"We had 65 or 70 men go out of our mill to army service, several of them were killed on the other side, a number are coming back wounded, one with only one leg and another with one arm. How would I feel if one of these boys came back and extended his hand to me, crippled and blood-stained, from fighting over there for America and for me and for my mill and my work, and my hand which I had to offer him was plastered over with dollars of profit made by forcing after-war deliveries on the Government? How would I feel? How would you feel?

"I want to tell you, gentlemen, that the Government of the United States is going to take care of us. It is going to do absolutely the right thing, it is going to give us a chance to save whatever we have made in this war period. We expected a jolt; we got into the war with a jolt and we expected a jolt in getting out of it. It has been eased up, we have a chance to work a little longer, we have a chance to defer our deliveries, to reorganize.

"If the spinners had come across fairly two weeks ago last Tuesday and accepted the proposition of the Government, we'd have had a price established by this time. Every knitter is going to be fairly and squarely dealt with by the Government; the man who has 8,000 bales of cotton will be taken care of on a just basis; the man that has 6,000,000 pounds of South American braid wool that he wanted to put in the worsted yarns for socks that cut the boys' feet will be taken care of, but he isn't going to make a cent of further profit, out of the Treasury. And neither of them is entitled to a cent of profit on that anticipated business. That is the way I look at it.

"The Government is going to see that he is not going to get any profit out of it, too, because if he did we'd just have to pay the bill ourselves. It would come back to us. We, the Bradley Knitting Company, have made a proposition to the Government to compromise, to settle our claims, and we are ready to sign up to-day and the Government seems to be ready to sign up with us, and perfectly satisfied.

"The additional machinery that we had to install in order to care for the increased volume of production, that they asked us for, is going to be taken care of by the Government, and this is the basis on which we offered it:

"We have that machinery inventoried; every piece that was taken into our factory was charged to war production account. The price was set forth and the bills are all filed under that head. We have the statements, bills of our own purchases or the statements of the manufacturers, of the pre-war costs of the same machinery. We have totaled the pre-war costs and the difference we have asked the Government to permit us to charge to operating expenses for this year, or else pay us the sum of the extra costs.

"Therefore we have in hand this additional machinery at a pre-war cost. Now, I believe, gentlemen, that is an honest and fair way of settling with the Government. It is true that some of the machinery that we have will stand idle for a time. How long, I don't know. It depends a good deal on the action of this group here today, because business resumption is in our own hands. It is largely a psychological proposition, and if we go out of here with our mouth down and a determination to buck the Government, it will be a long time before we have a chance to resume our full work.

"But if we go out of here determined to co-operate with the Government and start in on civilian work, we will have a revival of business that will make us all feel happy.

"The knit goods trade and the spinning trade—the textile trades as a whole, with all respect to the remarks of the Chairman, have made a lot of money during this war period. The textiles trades of America, from the cotton grower and the wool grower to the producer of the finished article, have made money. If the Government is willing to insure us those profits, minus of course, the 80 per cent or whatever the tax is (laughter), I believe we ought, as patriotic citizens, to co-operate with the Government on quick settlements, and get busy on civilian business." (Applause).

Dean Brown Becker, of the Better Sox Knitting Mills, Fort Atkinson, Wis., read a paper on the parcel carrier system as adapted to knitting factories and installed in his mill. Baskets traveling on overhead wires, as in many stores, carry materials to the knitter and return the product to the department desired, each basket stopping automatically at the out-station for which it is intended. Use of this system, it was explained, does away with trucks, saves aisle space and lessens opportunity for social intercourse during work hours.

The closing address was by P. C. Withers, Illinois Knitting Company, Mount Vernon, Ill., former president of the Association. Speaking optimistically, Mr. Withers said, "We all knew the jolt to business would come some day; we got only what we expected. The situation reminds me of the story of the child who fell down a stairway. When her mother rushed to her in alarm and asked, 'Dearie, are you hurt?' the child answered, 'No. Mamma, I was coming down anyhow.'"

Among the southern interests represented at the meeting were the Aycock Hosiery Mills, South Pittsburg, Tenn., by F. Guerrant; Richmond Hosiery Mills, Chattanooga, Tenn., by W. E. Coker; Louisville Cotton Mills Company, Louisville, Ky., by Thomas S. Tuley; Swift Spinning Mills Columbus, Ga., by Van Court Carwithen, of Philadelphia; and COTTON, Atlanta, Ga., by Don G. Gardener, Chicago.

Among the Knitting Mills.

The Womelsdorf Hosiery Mills, Inc., Womelsdorf, Pa., have recently filed articles of incorporation with a capital of $60,000 to operate a local plant for the manufacture of hosiery. Robert P. Steele, Brooklyn, N. Y., is treasurer.

Effective December 1, the plant of the Bath Knitting Corporation, Corning, N. Y., has been temporarily closed due to the cancellation of Government contracts, the shutdown affecting about 100 employes. It is proposed to reorganize the company prior to the reopening of the mill, which it is expected will be at an early date.

The Canasawacta Knitting Company, Main Street, Sherburne, N. Y., manufacturer of knit underwear, has filed notice of a reduction in its capital stock from $125,000 to $50,000.

The Cadet Hosiery Company, Second and Allegheny Streets, Philadelphia, Pa., a Delaware corporation, has recently increased its capital from $2,250,000 to $2,650,000, to provide for general business extensions.

Construction work has recently been completed by the Utica Steam & Mohawk Valley Cotton Mills State Street, Utica, N. Y., on the erection of the new addition to its engine plant, estimated to cost $15,000.

The Aetna Mills Company, Pleasant Street, Watertown, Mass., is planning for the construction of a new addition to its plant. Plans for the structure, which is estimated to cost $50,000, have been prepared.

The Newark Textile Mills, Inc., Newark, N. J., has been incorporated with a capital of $100,000 to manufacture cotton goods, etc. William H. Smith, George W. Swing, and William E. Burnett, Newark, are the incorporators.

The Chipman Knitting Mills, Easton, Pa., have recently completed the construction of the new one and two-story addition to their plant, about 100 x 135 feet, and operations have been inaugurated

Lee I. Robinson, Philadelphia, Pa., has acquired the plant of the Franklin Hosiery Mill, Lehigh and Mutter Streets, formerly operated by J. D. Boyce. The new owner is planning to take possession at once and operate the mill as heretofore.

The Woonsocket Falls Mills, Woonsocket, R. I., is having plans prepared for the erection of a new mill building on South Main Street, to provide for increased capacity.

Winthrop B. Hammond, 31 Bedford Street, Boston, Mass., has organized the Endura Knitting Company to operate a plant for the manufacture of hosiery and underwear.

The American Textiles, Inc., Bay City, Mich., is making rapid progress on the construction of a new addition to its plant, about 65 x 65 feet. This concern was formerly known as the World's Star Knitting Company.

The Wabash Mills Company, Manayunk, near Philadelphia, Pa., has completed the installation of two new 100 horsepower boilers at its plant, with steam hydraulic equipment, to provide for increased operations.

Fire recently seriously damaged the plant of the Cheltenham Knitting Company, Collom Street, in the Germantown section. The company specializes in the manufacture of knit underwear.

The Li Homac Hosiery Mills Company, of Shelby, N. C., has been incorporated with a capital stock of $25,000. George A. Hoyle, L. E. Ligon, and John R. McCloud, all of Shelby, are the incorporators.

"Link Belt Equipment for the Handling and Preparation of Coal at the Mines," is the title of a new 88-page illustrated booklet recently issued by the Link Belt Company, Chicago, Ill., and known as their book No. 333. A copy may be secured upon application.

The Saco-Lowell Shops with executive offices at 77 Franklin St., Boston, Mass., are sending the trade this year a duplicate of their former calendar tablet bearing the 1919 date line which they are presenting with the compliments of the season and their best wishes for a prosperous new year.

The Knit Goods Market.

Measured in value per unit and volume of production, knit goods reached the peak commercially in 1918, yet the last month of the year witnessed the most pronounced slump since 1914. It is not a minimizing of market conditions to say that business has been practically at a standstill since the middle of November, and this in the face of cumulative evidence of a coming demand the extent of which it is too early to measure.

All interests are in accord with the proposal that while merchants have had every license for staying out of the market in the last few weeks, a keen interest will be manifest before the end of the first month of 1919. It is fortunate for weak and easily scared manufacturers that buyers could not be tempted by offers of low prices. They simply wanted no merchandise until after inventorying stocks and available cash after the heavy tax payments that must be made.

Manufacturers have been willing to wait with the distributors, and in many sections operations have been materially curtailed, mills in the East, South, and West closing down for a long holiday vacation, all pointing to a shrinkage in anticipated supplies when the new era shall have dawned.

On the contrary, not a few mills are being operated to capacity in anticipation of the draft that will be made on the industry, attesting to a degree of confidence that has been lacking in other quarters.

The situation has been a badly muddled one, in which expectation of lower prices in the near future is playing no part. The attitude of labor perhaps is the paramount factor in the hesitancy of manufacturers to consider commitments for any very great distance in the future. In some of the hosiery mills of Philadelphia there is a demand from knitters for a 25 per cent increase in wages, while boarders in the same factories insist upon advances ranging from 25 to 55 per cent.

The prolonged Christmas vacation, it is pointed out, will work no hardship to employees, as all have earned large money, so much that in the last few months many were indifferent as to whether they did or did not put in full time.

The curtailment of production will accord with the thought injected into his remarks by T. H. Johnston, Knoxville (Tenn.) Knitting Mills Company, at the recent meeting of manufacturers in Atlantic City. Mr. Johnston's address on that occasion is being favorably commented on in the trade, with special stress on his words, "Curtail rather than force; any undue yielding would be a show of weakness. There is no cause for fear."

The trade looks for an influx of buyers about the middle of January. In fact, some buyers have said that before February they will be ready to consider Fall business, but that in the meantime they will remain out of the market. Until that time, therefore, mill agents and commission merchants, so far as can be learned, will be content to wait, refraining from any attempt to coax business by quoting unnecessarily low prices which would only plague them a little later, when everybody will be wanting knit goods.

Interest is centered at present in the outcome of the meeting of underwear manufacturers to be held in Utica

on December 27 for the purpose of arriving at an understanding as to when prices for Fall ought to be named. Many important factors who will be represented at the meeting are on record as in favor of deferring the opening until February. Some would prefer that prices be not named before March.

As is pointed out, orders taken in February would not be worth the paper used in writing them if, a month later, there should come even a slight decline, for no matter how firmly manufacturers may unite there always will be minor interests ready to cut under at the slightest opportunity. While such factors could not cut any wide swath, their slashing of prices, if only a few cents per dozen, would be sufficient to cause a further market disturbance and invite a repetition of what occurred with the signing of the armistice. Hence, it is reasoned, it were better to defer the opening until as late a date as possible, consistent with operation on a basis for keeping working organizations intact.

It is the thought of some factors that it would be a good idea to sell only from New York, sending no salesmen on the road until the market had been thoroughly tried out. Not alone would there be a saving in sales expenses, there would be afforded opportunity for ascertaining the exact mood of buyers, among most of whom there would be likely to develop uneasiness.

The meaning of this is well illustrated by the buyer of a Middle West jobbing house, which some years ago scented a big business, as the crops promised unusually well. Mills were late in showing samples and the buyer was reluctant to go to market, lest the impression prevail that he really was in want. "I began to feel uneasy," he said, recalling the occasion, "but I simply had to wait for the salesmen."

When samples for next year are shown, it is a safe guess, more manufacturers than ever will insist upon signed orders. Some mills already are accepting no others. Of course there are sales managers who believe it might offend the buyer of a large, reputable house if asked to sign an order, yet it has been shown that some jobbers insist, for their own protection, that all of their orders carry the signature of a responsible person, and mills which do business on signed orders only say they have experienced no difficulty. It is pointed out that any merchant who places an order in good faith cannot object to the affixing of his signature. A declination to do so would be regarded at this time as indicating an intention on the part of the buyer to make it possible for him to repudiate his order in the event that the market went against him.

An interesting phase of the market just now, particularly as relates to mills selling to the retail trade, is the number of inquiries as to whether the manufacturers will guarantee their prices. This is especially true of the underwear trade. One of the large Eastern mills is understood to be selling women's underwear for fall, guaranteeing the mill prices—that is, should the mill sell higher or lower at or prior to delivery time to others of its customers, those placing their orders now would pay the price at that time.

Among some manufacturers of this class there is a question whether it were wise to guarantee prices, except under iron-clad signed orders. The experience of a mill which tried the experiment as applied to goods for next spring suggests a negative view. It is recalled that about the middle of November customers to whom prices had been guaranteed recently wanted to know what the delivery price would be. When told that a definite answer could not be given at the time, some of these customers went into tantrums and charged deception.

It is recalled that not so long ago an underwear manufacturer guaranteed prices, but neglected to specify that the guarantee applied only to that particularly mill's prices. The result was that later competitors offered lower prices than did this manufacturer, and he found that he had taken the first step toward bankruptcy. He had sold heavily of 8-pound ribbed shirts and drawers and, in meeting the prices of his competitor, suffered a loss of approximately one dollar per dozen. The manufacturer had bought his supplies and had the goods in process when the first intelligence of the uneven competition reached him. Notwithstanding his competitor proved to be a second hand establishment, which had merchandise on order at low prices, he was unable to stem the tide, and narrowly escaped going to the wall.

Signed orders will be very necessary, it is felt, if prices are to be guaranteed, and it should be required of a buyer under such circumstances that in the event that he undertake to transfer an order to some other establishment he show that he did not buy advantageously as to prices and quality in contrast with other offerings.

One explanation for frequent confusion in the knit goods trade is the fact that the industry never was on a basis of strict stability. Instance the many well managed mills that move along smoothly, weathering every storm and holding their trade, while among many more of another type there is alarm at the first suggestion of a possible decline or excess of stock, and a scurrying to market with any old price. Yarn and supply houses keep a close watch on this class of manufacturers, and buyers are quick to take advantage of their weakness and vacillating policies. Just here it may be said that the mill executive who has not profited by experience and, believing he is a shade smarter than his competitors, undertakes to force the season and in doing so does not properly protect himself against the possibilitiy of price breaks, is liable to have a period of bitter repentance. By this time he should be with the very small minority. Closer co-operation of manufacturers undoubtedly would work toward greater stability and leave fewer mills to be the butt of jobbers' jokes.

A specific instance of reckless salesmanship crops out in a transaction of only a few days ago, when a salesman offered to a very large buyer, hosiery at 90 cents under the price at which the house owned goods yet to be delivered, the salesman being ignorant of the quantity yet to be shipped out. He proposed to the buyer that if he would place an order for two cases at the lower price the mill would accept cancellation of a like number of cases covered in a former order. The proposition was of course eagerly accepted, and on investigation it was ascertained that there remained but two cases of the first order to be delivered, so that the buyer, with no effort on his part, effected the snug saving of 90 cents a dozen.

For the moment cotton hosiery is perhaps the least active of knit goods lines, distributors being not at all interested in acquiring stock, although keen as to what price changes may be expected. The Durham, N. C., Hosiery Mills has made no price changes and, it is stated at the office of the company, will give no consideration to the matter until well after January 1. This necessarily does

not mean that there is a possibility of a downward revision. The Durham management has every confidence in the future, and believes that by mid January business will be moving, perhaps slowly at the start, but in steadily increasing volume.

While a number of hosiery mills have gone into temporary idleness and a few are operating to capacity, it is the thought of the executive of a large Pennsylvania mill that shortly all will scent a demand for considerable spot-delivery goods. "It is our intention," says the executive, "to have the bag open when that time comes."

In the New York office of another mill it is reasoned that some of the less reputable jobbers who cancelled their orders while seized with hysteria will come rushing into the market, and, lacking the courage to go back to their former mills and commission houses, will seek new fields in which to operate. It is expected there will be considerable trade of this character to be taken care of, and at least one mill is preparing for the emergency, resolved, however, that only signed orders will be considered.

There is one type of merchant for whom the signed order will have no terror. For illustration, a jobber said to a commission merchant, "I am going to cancel; what are you going to do about it?" There are not many of these, and the mill that does business with them will do so at its peril.

Stocks of low-price hosiery in jobbers' hands are fast becoming exhausted, but there still is some swapping of merchandise by jobbing houses.

It has been suggested that manufacturers adopt a like course as to yarns; that they list yarns through their organization and thus relieve one another. By this means, it is thought, there would be a lessening of the tendency to further unsettle the yarn market, enabling some manufacturers to unload and others to get quick deliveries.

Seamless silk stockings continue in good demand, but manufacturers are not eager for business.

The better inquiries for merchandise come from cities other than New York, say manufacturers who have been in that city looking over the market.

Two orders for full-fashioned silk stockings—ladies—were booked a few days ago, the quantities running into thousands of dozens.

It is authoritatively stated in the office of a very large mill that a buyer whose order for full fashioned silks was declined on the ground that the mill felt it could do no more than take care of its line of customers, offered a price well above that which the mill was quoting. This mill, by the way, is accepting no new accounts for the present.

Manufacturers not well covered with raw or thrown silk probably will find when they go into the market that prices will be against them. Probably even now none of the importers would accept an order for say 500 or 1000 bales of raw silk without first cabling Japan, where frequently the price is advanced at a time when the trade looks for a reduction. Recent fluctuations have been within a range of about 25 to 30 cents a pound, the prices hugging $8. Artificial silk is scarce, at $4.50 as the contract price.

Mills generally are believed to be not well stocked. Confronted with heavy tax payments, investments in raw materials seem to have been put off until manufacturers have had opportunity for inventorying their resources.

Jobbers who have been sounded on the matter of naming next year's prices were almost unanimous in the opinion that the trade would not be interested until late in January, at the earliest, some stating they would not go in the market before February.

A questionnaire to a large number of the more important retailers in the more populous cities discloses that February will be sufficiently early to talk business for 1919.

French and Japanese commissions are reported in the American market for knitting machinery, and, it is understood are buying heavily. Belgium has had representatives here for some time looking for dyehouse equipment.

A well authenticated but unconfirmed report is to the effect that Marshall, Field & Company have taken over an important underwear company in Chicago and will operate the plant.

Spring underwear promises to be scarce, as to some lines. Some mills have but relinquished government work and have not made up a dozen garments for the civilian trade. As these mills, many of them, make two season garments and cannot hope to do much for Spring, they may be expected to be desirous of going out early with their Fall lines.

Report of a Test on a Cone Winder.

This test was run to determine the amount of power which could be conserved under various conditions of load by equipping the driving head of a cone winder with six Hyatt roller bearings, as compared with a similar head equipped throughout with plain bearings.

The winder to be tested had been fitted with a head equipped throughout with plain bearings, and the winder and head complete had been run several weeks under ordinary mill conditions. Another winder similar in every respect to the test machine was fitted with a head eqiupped with two Hyatt bearing No. 19225 and four Hyatt bearings No. 17116 and had been run the same length of time. All other bearings on this head were plain. After testing the winder with a plain bearing head, the head was removed. The head equipped with six Hyatt bearings was substituted and the test was repeated. By using one winder and changing the head instead of two separate machines, it was a simple matter to accurately determine the power saving due to the use of Hyatt bearings.

During the test the winder was working on No. 26 single grain yarn. Tension weight L, No. 13 model was used.

In order to make the taking of test observations and readings more simple, accurate and convenient, the test winder was disconnected from its countershaft and belted direct to a 3 horsepower mill motor, which was bolted to the floor a few feet from the winder. On the name plate of this motor was stamped: "Textile Mill Motor, Type KT 180, Volt 550, Ampere 3.84 H.P. continuous, General Electric Company." All power input readings were recorded on the charts of a utility watt meter, which is a sensitive, graphic instrument made by the Esterline Company of Indianapolis, Indiana. Speeds were determined by a hand speed counter and a watch.

On October 9th all necessary arrangements for a proper conduct of the test were made, and a few preliminary readings taken to make certain that everything was in proper

CHARACTER OF TEST.	Number of Test in the Chart with Plain.	Number of Test in the Chart with Hyatt.	CONSUMPTION OF ENERGY: Machine With Plain Including Motor — Deflection	K. W.	Machine With Hyatt Including Motor — Deflection	K. W.	Motor Only K. W.	Plain without Motor K. W.	Hyatt without Motor K. W.	Hyatt Savings In K. W.	Hyatt Savings In %	R.P.M. of Main Shaft & Motor. Plain.	R.P.M of Main Shaft & Motor Hyatt.	Humidity When Plain	Humidity When Hyatt	Room Temper. When Plain.	Room Temper. When Hyatt.
Motor only	1	17	.....	.....	.....	.....	2.250	....	....	....	.....	902	900	55	53	74°	78°
Motor with Loose Pulley ..	2	16	.....	.....	.....	.....	2.250	....	....	....	.....	896	900	55	53	74°	78°
Both Belts, Cones Idle....	3	15	.490	2.450	.485	2.426	2.250	.200	.176	.024	12.0%	657	654	55	53	74°	78°
Cross Belt, Cones Idle	4	14	.473	2.366	.471	2.356	2.250	.116	.106	.010	8.6%	.....	658	54	53	74°	78°
Open Belt, Cones Idle....	5	13	.472	2.360	.468	2.340	2.250	.110	.090	.020	18.2%	.....	661	54	55	74°	78°
Both Belts, Head Only....	6	12	.459	2.300	.459	2.300	2.250	.050	.050	0	0	663	668	54	55	74°	78°
Cross Belt, Head Only	7	11	.471	2.356	.461	2.304	2.250	.106	.054	.052	49.0%	667	667	54	53	74°	78°
Open Belt, Head Only	8	10	.467	2.340	.456	2.280	2.250	.090	.030	.060	66.5%	663	668	54	52	74°	78°
Jack Shaft, Head Only	9	9	.461	2.304	.460	2.302	2.250	.054	.052	.002	3.9%	669	668	55	52	74°	78°
Jack & Lower Shaft, Head Only	10	8	.465	2.324	.461	2.308	2.250	.074	.058	.016	21.6%	665	668	55	52	74°	78°
Jack & Cam Shaft Only..	11	7	.465	2.324	.463	2.312	2.250	.074	.062	.012	16.2%	669	667	57	52	74°	78°
Cross Belt & Empty Cones.	12	6	.508	2.540	.508	2.540	2.250	.290	.290	0	0	652	651	58	55	74°	77°
Open Belt & Empty Cones.	13	5	.513	2.562	.508	2.540	2.250	.312	.290	.022	7.0%	648	649	60	55	74°	77°
Both Belts & Empty Cones.	14	4	.582	2.910	.570	2.850	2.250	.660	.600	.030	9.1%	630	634	60	57	76°	76°
Both Belts & Full Cones..	15	1	.588	2.940	.570	2.850	2.250	.690	.600	.090	13.0%	634	638	58	61	78°	76°
Cross Belt & Full Cones..	16	3	.498	2.494	.497	2.484	2.250	.244	.234	.010	4.1%	650	650	58	61	78°	76°
Open Belt & Full Cones*..	17	2	.500	2.500	.512	2.560	2.250	.250	.310	.060	24.0%	650	650	58	61	78°	76°

*One Hyatt Bearing Mis-Aligned.

running condition. On October 10th the winder was tested for power consumption when equipped with the plain bearing head. Seventeen observations were taken under various conditions. These conditions are indicated and the readings tabulated on a chart. The plain bearing head was then removed, and the head equipped wtih Hyatt bearings was substituted. The machine was again connected to the motor. Early the next day (October 11th) the winder was again tested, all previous operations being repeated and the results recorded. The results of this second test also appear on chart No. 1.

In each test the conditions were as nearly identical as it was possible to make them. The same size yarn was being wound, the same motor was used and the belt tension was the same as far as it was possible to make it. The same operators were in attendance, the temperature and humidity of the room were practically the same.

During the tests none of the bearings received any attention whatever, except one of the Hyatt bearings, which was improperly aligned at the start. This was easily corrected. None of the bearings received any lubrication during the tests other than that contained in their housings or oil cups, nor had they been prepared in any way in advance.

In each case the various shafts were tested separately and with various amounts of yarn on the cones. All of the tests were conducted in accordance with a program prepared in co-operation with Lester Campbell, chief engineer of the Foster Machine Company. Mr. Campbell witnessed all the preparations and tests from start to finish. The Hyatt Roller Bearing Company was represented by P. B. Liebermann, chief engineer; H. Wygod, engineer of tests and F. S. Frambach, sales engineer.

The power consumption in each case was automatically recorded on the chart in the recording watt-meter. Both in the plain bearing tests and the Hyatt bearing tests the power consumption of the motor alone was measured and subtracted from the total power input. The result was the power consumption of the winder. All figures are tabulated on chart No. 1. A study of these readings shows that the saving in power when Hyatt bearings are used varied from 0 per cent to 66½ per cent, except in one instance, test No. 17-2, in which case the plain bearing machine indicated a saving of 24 per cent. This discrepancy was due to the improper installation of one of the Hyatt bearings, and, as already stated, this was easily corrected.

While the power saved as a result of using Hyatt bearings is important in view of the ever increasing cost of fuel, it is by no means the only factor to be taken into account when considering the advisability of adopting Hyatt bearings as standard equipment. Such bearings are durable and permanent. The helically wound, chrome vanadium steel rollers easily absorb any shocks or overload without injury to the bearings or the machine. The spiral slots in the hollow rollers distribute the lubricant to all parts of the journal and outer race. The oil tight housing prevents the escape of oil and keeps foreign matter out. Hyatt bearings need be lubricated but a few times a year. This reduces attendance costs, saves lubricant and insures against oil stains on the yarn being wound. When properly installed such bearings never run hot nor do they stick. This eliminates a frequent cause of interrupted production. Taking all points into consideration, it is apparent from these claims that textile machinery builders who standardize on Hyatt bearings are taking a big step toward the ideal—a permanent machine.

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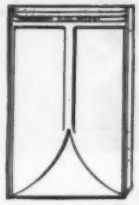

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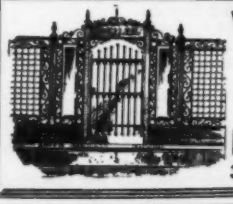

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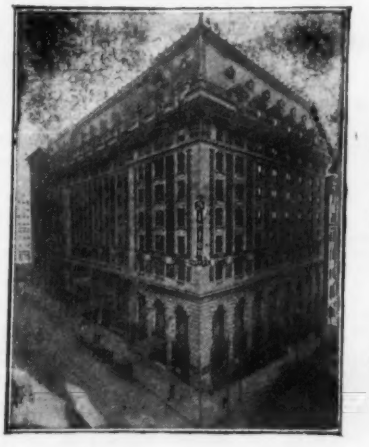

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(See Cooling.)

Cones and Cone Winding.
Universal Winding Co.

Connectors (Frankel Solderless).
Westinghouse Elec. & Mfg. Co.

Contractors—Building.
(See Architects and Engineers.)

Controlling Instruments (Temperature).
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Conveying Machinery.
American Pulley Co.
American Supply Co.
Collins, J. D.
Cresson-Morris Co.
Hunt Co., C. W.
Leigh & Butler.
Link-Belt Co.
Morse Chain Co.
Phila. Drying Machinery Co.
Phila. Textile Machy. Co.
Saco-Lowell Shops.
Schofield, Wm. Co.
Seeger-Walraven Co.
Smith & Furbush Mach. Co.

Coolers.
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Cooling Ponds.
Spray Eng. Co.

Cooling Towers.
(See Tanks and Towers.)

Copper Stamps and Stencils.
(See Stamps, Stencils, Etc.)

Cordage Machinery.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.
Textile Finishing Machinery Co. The
Whitin Machine Works.

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Bliss, Fabyan & Co.
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Fawcett, Hughes.
Hunter Mfg. & Com. Co.
Lane & Co., J. H.
Lauten Co., Prince.
Lawrence & Co.
Minot, Hooper & Co.
Pacific Mills, Inc.
Peech, Sons & Phillips.
Salkeld & Bro., A. D.
Southern Cotton Yarn Co.
Taylor, Clapp & Beall.
Tolar & Hart.
Turner Co., J. Spencer.
Weimar Bros.
Wellington, Sears & Co.
Wilson & Co., James L.
Woodward, Baldwin & Co.

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(See Brokers.)

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Cocker Mch. & Foundry Co.
Crompton & Knowles Loom Wks.
Delahunty Dyeing Machine Co.
Draper Corporation.
Firsching, J. A.
Fletcher Works.
Howard & Bullough.
Leigh & Butler.
Phila. Drying Mchy. Co.
Phila. Textile Machy. Co.
Sargent's Sons. Corp., C. G.
Saco-Lowell Shops.
Schaum & Uhlinger.
Schofield Co., Wm.
Smith & Furbush Mach. Co
Stafford Co.
Textile Finishing Machinery Co., Whitin Machine Works.
Whitinsville Spinning Ring Co.

Cotton Tape Loom.
Fletcher Works.
Schaum & Uhlinger.

Cotton Yarn Mills.
(See Yarn Manufacturers.)

Coupling—Rope.
Hunt Co., C. W.

Counters—Revolution, Hank, Pick, Etc.
Veeder Mfg. Co.

Cranes—Locomotive.
Link-Belt Company.

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American Crayon Co.
Dixon Crucible Co.

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Allis-Chalmers Mfg. Co.

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(See Cloth Cutters.)

Cutters—Thread.
(See Thread Cutters.)

Dictaphones.
Columbia Graphophone Co.

Dies—Steel.
(See Stamps, Stencils, etc.)

Disinfectants.
Barrett Co., The

Dobby Chains.
Crompton & Knowles Loom Wks.
Whitin Machine Works.

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(See Boxes—Mill.)

Door Mats—Steel.
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Taylor Instrument Co.

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Howard & Bullough.
Saco-Lowell Shops.

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(See Electrical Machinery.)

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(See Fountains, Drinking.)

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(See Blowers and Blowing Systems.)

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Schofield Co., Wm.
Smith & Furbush Mach. Co.

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Sargent's Sons Corp., C. G.
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Cocker Mch. & Foundry Co.
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Electro Bleaching Gas Co.
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Fletcher Works.
Leigh & Butler.
Phila. Drying Machinery Co.
Phila. Textile Machy. Co.
Reliance Machine Works.
Schaum & Uhlinger.
Textile Finishing Machinery Co., The
Tolhurst Machine Works.

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Phila. Drying Machinery Co.

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Barrett Co.
Bayer Co.
Bosson & Lane.
Dicks, David Co., Inc.
Douglas Co.
Du Pont de Nemours & Co., E. I.
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Hemingway, Inc., Frank
Holland Aniline Co.
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
Lewis, John D.
Marden, Orth & Hastings Corp.
Metz & Co., H. A.
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Newbert Color Co.
Newport Chemical Works, Inc.
Sevdel Mfg. Co.
Sherwin-Williams Co.
Sonneborn Sons, Inc., L.
United Chemical Products Corp.
Wolf & Co., Jacques
Zavon, Inc.

Electric Dynamos and Motors.
(See Motors and Generators.)

Electric Fans.
(See Fans—Electric.)

Electric Lamps.
(See Lamps.)

Electrical Machinery and Supplies.
Allis-Chalmers Mfg. Co.
Carter Electric Co.
Chicago Fuse Mfg. Co.
Economy Fuse & Mfg. Co.
Federal Sign System (Electric)
General Electric Co.
Lincoln Elec. Co.
Seeger-Walraven Co.
Snow & Co., E. W.
Walsh & Weidner Boiler Co.
Western Electric Co.
Westinghouse Electric & Mfg. Co.

Electric Signs.
Federal Sign System (Electric).

Electric Sirens.
Federal Sign System (Electric).

Electric Trucks—Inter-Transportation.
(See Trucks—Electric.)

Elevators.
Collins, J. D.
Hunt Co., C. W.
Link-Belt Company.
Seeger-Walraven Co.

Enamel—Mill White.
(See Paint—Mill White.)

Engineers (Mill).
(See Architects.)

Engines—Oil, Gas and Gasoline.
Seeger-Walraven Co.

Engines—Steam.
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Lombard Iron Works & Supply Co.
Schofield's Sons Co., J. S.
Seeger-Walraven Co.
Toomey, Frank.
Walsh & Weidner Boiler Co.

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Lunkenheimer Co.

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Goodyear Tire & Rubber Co.
Lunkenheimer Co.
Graton & Knight Mfg. Co.

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Wiggins Co., John B.

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American Laundry Mchry Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.

Fans——Electric.
Allis-Chalmers Mfg. Co.
Carter Electric Co.
General Electric Co.
Howard & Morse.
Lincoln Electric Co.
Western Electric Co.
Westinghouse Elec. & Mfg Co.

Fans—Conveying, Power and Exhaust.
(See Blowers and Blowing Systems.)

Feed Water Purifiers.
(See Water Softeners.)

Felting Machinery.
Smith & Furbush Mach. Co.

Fence—Steel and Iron.
Anchor Post Iron Works.
Cyclone Fence Co.
Page Steel & Wire Co.

Fibre Products.
American Vulcanized Fibre Co.
Fibre Specialty Mfg. Co.
Keystone Fibre Co.
Lane & Bro., W. T.
Leatheroid Sales Co.
Macrodi Fibre Co.
Rogers Fibre Co.
Standard Fibre Co.

Filters—Water.
(See Water Softening.)

Finishing.
(See Dyers, Bleachers and Finishers.)

Finishing and Sizing Materials.
American Dyewood Co.
Arnold, Hoffman & Co.
Arabol Mfg. Co.
Bosson & Lane.
Corn Products Refining Co.
Dicks, David Co., Inc.
Douglas Co.
Du Pont de Nemours & Co., E. I.
Essex Aniline Works, Inc.
Electric Smelting & Alum. Co
Hemingway, Inc., Frank
Kali Mfg. Co.
Klipstein & Co., A.
Levinstein & Co., Inc.
Marden, Orth & Hastings Corp.
Newport Chemical Wor'ks, Inc.
Metz & Co., H. A.
Newbert Color Co.
National Aniline & Chemical Co.
Seydel Mfg. Co
Sherwin-Williams Co.
Sonneborn Sons, Inc., L.
United Chemical Products Corp.
Warren Soap Mfg. Co.
Wolf & Co., Jacques
Zavon, Inc.

Fire Escapes (Spiral).
Collins, J. D.

Fire Hose.
(See Hose—Fire.)

Fire Protecting Paint.
(See Paint—Fireproof.)

First Aid Room Equipment.
(See Hospital Equipment.)

Flooring (Hardwood).
Nashville Hardwood Flooring Co.

Fluted Rolls.
Howard & Bullough.
Saco-Lowell Shops.
Schofield's Sons Co., J. S.
Smith & Furbush Machine Co.
Southern Spindle & Flyer Co.
Whitin Machine Works.

Flyers.
Howard & Bullough.
Leigh & Butler.
Saco-Lowell Shops.
Southern Spindle & Flyer Co.

Friction Clutches.
(See Clutches—Friction.)

Fuses.
(See Elec. Mchy. and Supplies.)

Garnett Machines.
Leigh & Butler.
Smith & Furbush Mach. Co.

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(See Engines—Gas.)

Gaskets
Diamond State Fibre Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.

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Lunkenheimer Co.

Gauges—Draft.
Taylor Instrument Co.

Gauges—Mercury Column Vacuum.
Taylor Instrument Co.

Gauges—Oil.
Lunkenheimer Co.

Gauges—Water.
Lunkenheimer Co.

Gears—Silent.
Diamond State Fibre Co.
General Electric Co.
Link-Belt Co.
Morse Chain Co.

Gear Cutters.
Cresson-Morris Co.
Whiton Mch. Co., D. E.

Gear Pullers.
Greb Co., Inc.

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(See Motors and Generators.)

Graphite—Products.
Dixon Crucible Co. Jos.

Grates—Shaking.
Collins, J. D.
Lombard Fdy. & Mch. Co.

Grease.
(See Lubricants.)

Grease Cups.
(See Lubricators.)

Grinders—Card, Cylinder Roll, Napper and Garnett.
(See Card Grinding Machinery.)

Guides (Thread).
Mitchell-Bissell Co.
Palmer Co., I. E.

Gums.
(See Finishing and Sizing Materials.)

Hangers.
(See Shafting and Hangers.)

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Nashville Hardwood Flooring Co.

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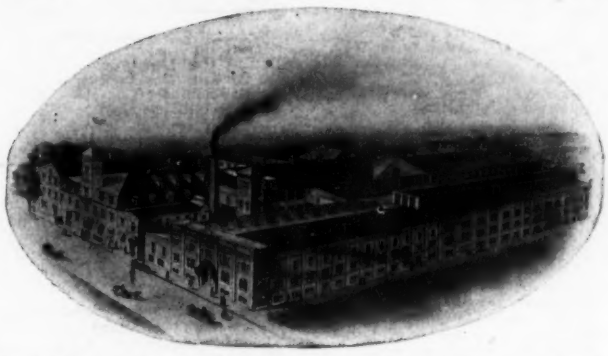

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Crompton & Knowles Loom Wks.
Whitin Machine Works.

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Link-Belt Company.
Morse Chain Co.
Seeger-Walraven Co.

Hose—Fire.
Goodyear Tire & Rubber Co.

Hosiery Finishing Boards.
(See Boards.)

Hosiery Yarns.
(See Yarn Manufacturers.)

Hospital Equipment.
Thomas Co., F. H.

Hotels.
Marquette.
Martinique.
Sinton.

Humidifying Apparatus.
Carrier Eng. Corp.
New York Blower Co.
Parks-Cramer Co.
Spray Eng. Co.

Hydraulic Turbines.
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Hydro Extractors.
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Hydrometers.
Taylor Instrument Co.

Hygrometers.
Taylor Instrument Co.

Hygrodeiks.
Taylor Instrument Co.

Indicating and Recording Instruments.
Taylor Instrument Co.
Tagliabue Mfg. Co., C. J.

Indigo.
(See Dyestuffs and Chemicals.)

Injectors.
Lunkenheimer Co.

Ink—Stencil and Marking.
Atlanta Stamp & Stencil Wks
Bradley Mfg. Co., A. J.

Iron Work—Ornamental.
Anchor Post Iron Works.
Cyclone Fence Co.
Dufur & Co.
Howard & Morse.
Page Steel & Wire Co.

Jacquards.
Crompton & Knowles Loom Wks.

Jute Bagging Machines.
Smith & Furbush Mach. Co.

Kettles—Size.
(See Size Kettles.)

Kettles—Soda.
Lombard Iron Works & Sup. Co.

Kiers.
(See Bleaching Kiers.)

Knit Goods.
(See Cotton Cloth Commission Merchants and Dealers.)

Knit Goods Washers.
(See Washers—Cloth.)

Knitting Machinery.
Boss Knitting Mach. Works.
Brinton Co., H.
General Machine Works.
Hemphill Mfg. Co.
Nye & Tredick Co.
Scott & Williams.
Smith & Furbush Mach. Co.
Wildman Mfg. Co.
Whitin Machine Works.

Lamps—Incandescent and Arc.
Boston Economy Lamp Div.
Carter Electric Co.
General Electric Co.
Western Electric Co.
Westinghouse Lamp Co.

Lamp Reflectors.
Ivanhoe-Regent Works.

Lappers.
Saco-Lowell Shops.
Smith & Furbush Mach. Co.

Laundry Machinery.
American Laundry Mchry. Co.
Fletcher Works.
Schaum & Uhlinger.
Tolhurst Machine Works.

Leather Belting.
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Leather Specialties.
American Supply Co.
Graton & Knight Mfg. Co.
Williams & Sons, I. B.

Linen Yarns.
(See Yarns—Linen.)

Link Belting.
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Liquid Chlorine.
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Loaders—Wagon and Trucks.
Link-Belt Company.

Logwood Extract.
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Looms.
Crompton & Knowles Loom Wks.
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Fletcher Works.
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Schaum & Uhlinger.
Schofield, Wm. & Co.
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Dixon, Jos., Crucible Co.
Kellogg & Co., E. H.
N. Y. & N. J. Lubricant Co.
Swan & Finch Co.

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Lunkenheimer Co.
N. Y. & N. J. Lubricant Co.

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Home Bleach & Dye Works.

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Textile Finishing Machinery Co.

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Lupton's Sons Co., David

Metal Workers—Sheet.
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Howard & Morse.
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Lincoln Electric Co.
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Taylor Instrument Co.
Western Electric Co.
Westinghouse Elec. & Mfg. Co.

Meters (Revolution).
Taylor Instrument Co.

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(See Boxes—Mill.)

Mill Engineer.
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Mill White Paint.
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General Electric Co.
Lincoln Electric Co.
Seeger-Walraven Co.
Western Electric Co.
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Transmission Ball Bearing Co.

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Leigh & Butler.

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Oils—Lubricating.
(See Lubricants.)

Oil Cups.
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Oil Paper.
Bradley Mfg. Co., A. J.

Oiling Devices.
(See Lubricators.)

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Whitin Machine Works.

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Bird Wilcox Co.
Oxweld Acetylene Co.

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Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co.
Sherwin-Williams Co.

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Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co.
Sherwin-Williams Co.

Paint—Mill White.
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Detroit Graphite Co.
Du Pont de Nemours & Co., E. I.
Peaslee-Gaulbert Co.
Sherwin-Williams Co.

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Odell Mfg. Co.

Paper—Oil.
Bradley Mfg. Co., A. J.

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(See Screens and Sieves.)

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Howard & Bullough, Am. Machine Co.
Saco-Lowell Shops.
Schofield Co., Wm.
Smith & Furbush Mach. Co.
Whitin Machine Works.

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Phila. Drying Machine Co.
Reliance Machine Works.
Seeger-Walraven Co.
Smith & Furbush Mch. Co.
Textile Finishing Machinery Co. The

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American Pulley Co.
Cresson-Morris Co.
Link-Belt Company.
Seeger-Walraven Co.
Transmission Ball Bearing Co.

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Goodyear Tire & Rubber Co.
Williams & Sons, I. B.

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Collins, J. D.
Seeger-Walraven Co.
Textile Finishing Machinery Co.
Walsh & Weidner Boiler Co. The
Toomey, Frank.
Westinghouse Elec. & Mfg. Co.

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Taylor Instrument Co.

Pyrometers.
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Taylor Instrument Co.

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Dufur & Co.

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(See Trucks—Electric.)

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Taylor Instrument Co.

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American Supply Co.
Emmons Loom Harness Co.

Reels.
Crompton & Knowles Loom Wks.
Draper Corporation.
Saco-Lowell Shops.
Schofield Co., Wm.
Whitin Machine Works.

Reflectors (Lamp).
Ivanhoe-Regent Works.

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Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

Regulators—Temperature
Tagliabue Mfg. Co., C. J.
Taylor Instrument Co.

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Southern Spindle & Flyer Co.

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Cameron Mch. Co.

Rib Top Cutters.
General Machine Works.
Wildman Mfg. Co.

Ring Travelers—Steel and Bronze.
Whitinsville Spinning Ring Co.
Whitin Machine Works.

Rings—Spinning.
(See Spinning Rings.)

Rocker Shaft Bearings.
(See Bearings.)

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Barrett Co., The
Cortright Metal Roofing Co.
Detroit Graphite Co.

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Detroit Graphite Co.
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(See Cans—Roving.)

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Saco-Lowell Shops.
Whitin Machine Works.

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(See Stamps, Stencils, Etc.)

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Goodyear Tire & Rubber Co.

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Lupton's Sons Co., David.

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See Boiler Feed Water Purification.

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Willcox & Gibbs Sewing Mach. Co.

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Barrett Co.

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"Cotton Mill Machinery Calculations"

EVERY Textile Man should have these reference books. They cover in a detailed and thorough manner all calculations necessary to be made on any cotton mill machinery manufactured in the United States and constitute one of the best references on this subject obtainable.

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Textile Finishing Machinery Co. The

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Tagliabue Mfg. Co., C. J.

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Lombard Iron Works & Sup. Co.
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(See Finishing & Sizing Materials.)

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(See Water Softeners.)

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(See Finishing.)

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(See Hose—Steam.)

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(See Traps—Steam.)

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(See Marking Pots and Brushes.)

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(See Stamps and Stencils.)

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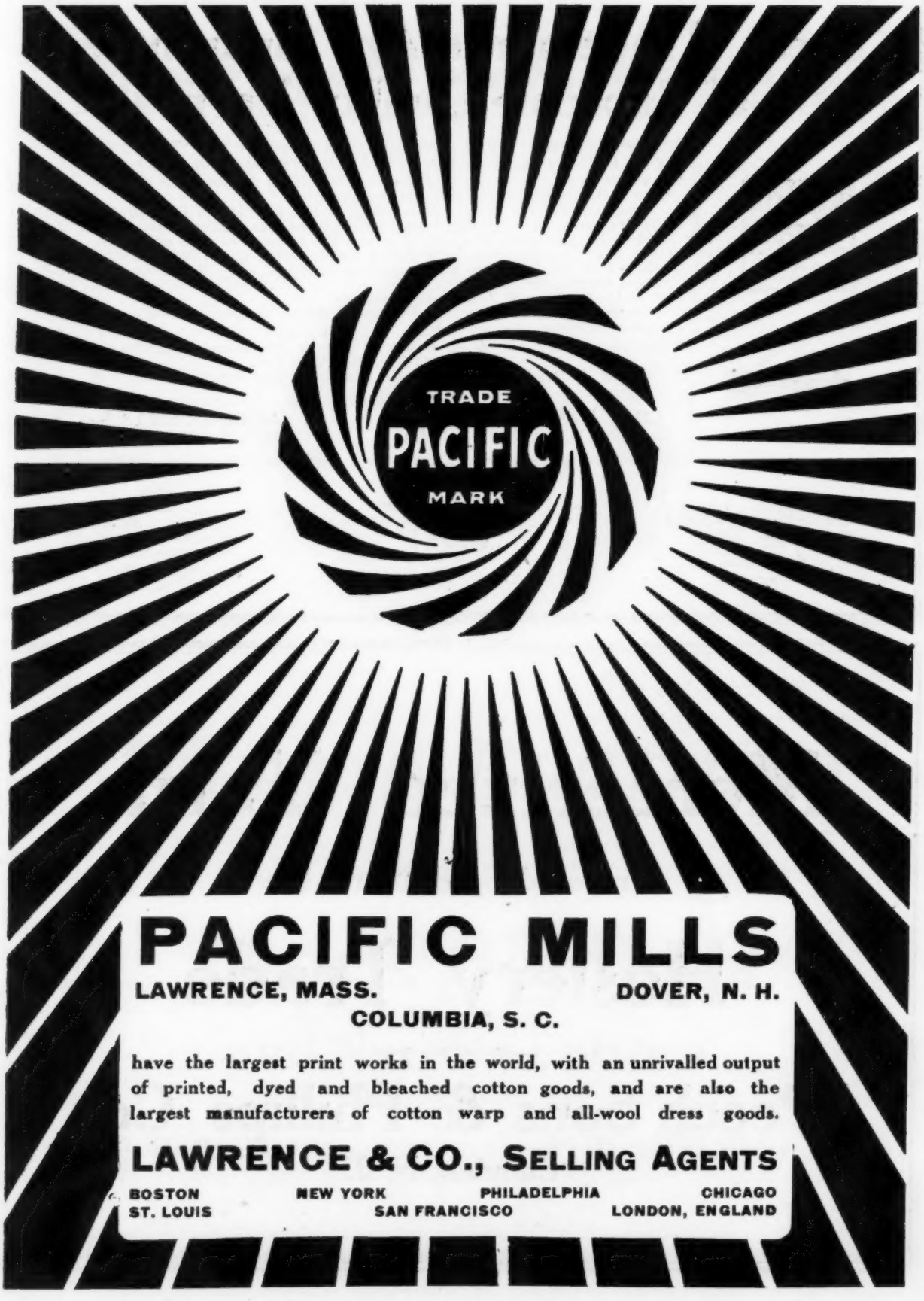

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29 and 36 inches wide, 7, 8, 9, 10 and 12 ounce.

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KALI MANUFACTURING CO.

KMC TRADE MARK KALI

MANUFACTURING CHEMISTS

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Made in America by American Chemists

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TRADE MARK REGISTERED

Turkey Red Oil in Sulphur Dye Bath

Removes the Bronzy Color

Produces Deeper and more Brilliant Colors.
Makes Hosiery Boarding Easy and
The Finished Product Soft

KIER OIL

Used in Boil to Remove Oil Stains and Natural Greases.
Opens up fibre so that less chlorine does the Bleaching
Produces a Softer Finished Bleach

KALI CHLORINE NEUTRALIZER

(Endorsed by Leading Bleachers)

Prevents Tender Bleached Goods
Used as an anti chlor.
A dry powder—keeps indefinitely—easy to use.

HYDROSULPHITE

For Vat Colors and Stripping

Chemical Questions Pertaining to Textile Industry Answered Free of Charge.

Dicks, David Co. Inc.

WE ANNOUNCE

that we now have a complete line of SULPHUR COLORS, suitable for all kinds of wash goods. We especially call your attention to our

HOLLAND SULPHUR BLUE

which we believe to be the brightest SULPHUR BLUE on the market today. Our other Sulphur Colors are

SULPHUR BROWN
SULPHUR GREEN
SULPHUR YELLOW
SULPHUR BLACK
PRIMULINE

which makes a complete line for wash goods of all kinds.

We also carry a complete line of DIRECT and BASIC COLORS, and will appreciate your inquiries.

ANILINE SALT and ANILINE OIL and a complete line of other heavy chemicals suitable for all dyed goods is carried in stock.

BEN R. DABBS, SOUTHERN MANAGER

CHARLOTTE, N. C.

Main Office, 299 Broadway, New York City.

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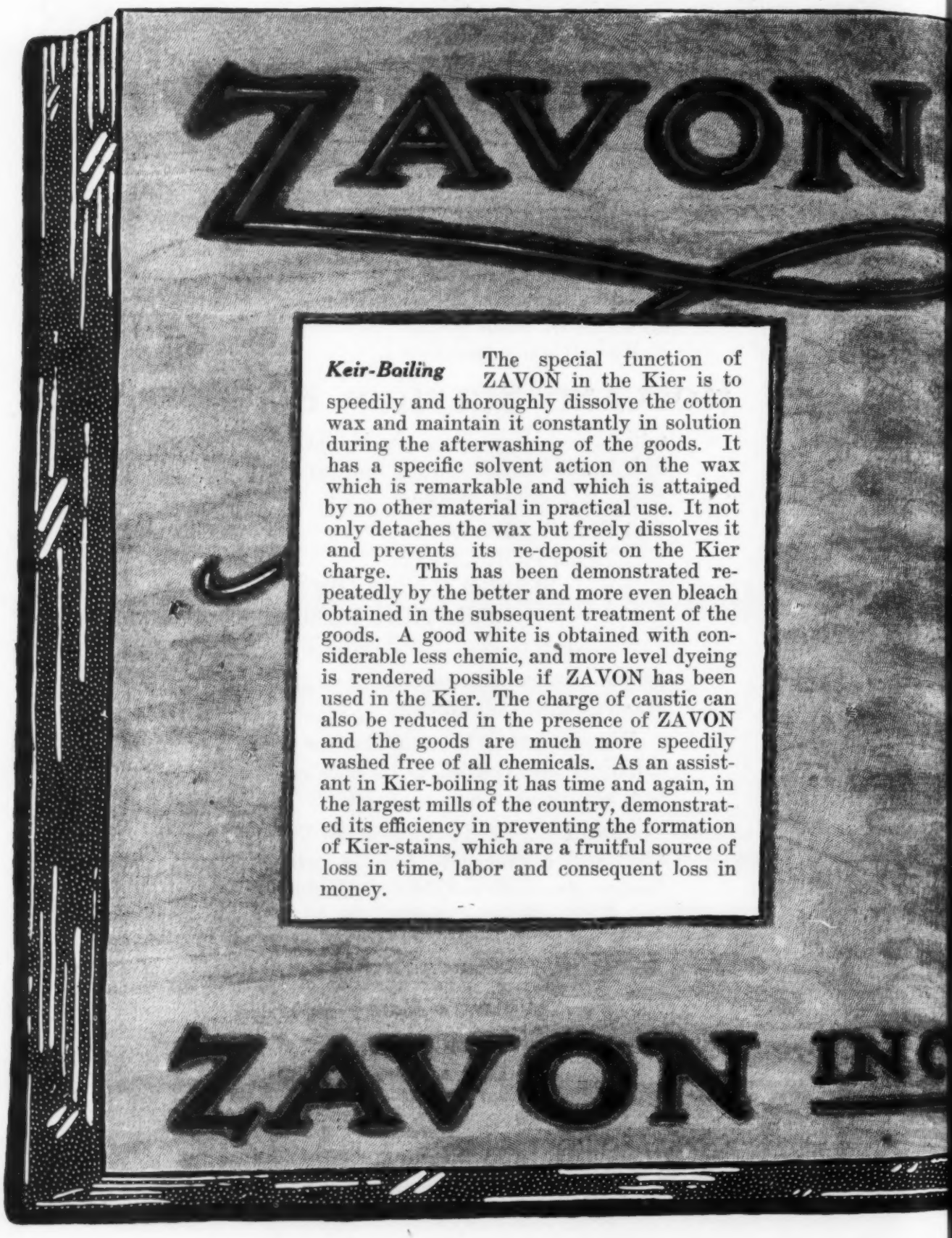
ZAVON
Keir-Boiling
The special function of ZAVON in the Kier is to speedily and thoroughly dissolve the cotton wax and maintain it constantly in solution during the afterwashing of the goods. It has a specific solvent action on the wax which is remarkable and which is attained by no other material in practical use. It not only detaches the wax but freely dissolves it and prevents its re-deposit on the Kier charge. This has been demonstrated repeatedly by the better and more even bleach obtained in the subsequent treatment of the goods. A good white is obtained with considerable less chemic, and more level dyeing is rendered possible if ZAVON has been used in the Kier. The charge of caustic can also be reduced in the presence of ZAVON and the goods are much more speedily washed free of all chemicals. As an assistant in Kier-boiling it has time and again, in the largest mills of the country, demonstrated its efficiency in preventing the formation of Kier-stains, which are a fruitful source of loss in time, labor and consequent loss in money.
ZAVON

THE TEXTILE SOLVENT

Open Kettle Boil The advantages of ZAVON are here quite as conspicuous as in the Kier. The marked economies are due to the high solvent and emulsifying power of the product. Oil-stains—the bane of the hosiery and knit-goods trade—cease to exist and open kettle practice is rendered as good as Kier boiling.

Softening In all the processes demanding a preparation of the cotton fibre from such after treatment, as mercerizing, dyeing, desizing, the use of Zavon is specially to be commended. It has virtures possessed by neither soap, nor soluble oil, and relies not only on an emulsifying or general detergent action on the waxes and oil-bound dirt but is possessed of a true solubilizing power.

The above claims are based on actual results in our customers' mills and we stand ready to convince you, as we have convinced them, that all our claims can be substantiated.

There can be no charge for time or material or our best efforts unless we can prove results to you. Can anything be fairer?

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413 Baltic St. Brooklyn, N.Y.

Bring Us Your Dyestuff Problems

The application of the dyestuff to textiles is as much an art as the production of the dyestuff.

Dyeing is a chemical, not a mechanical process. An intimate knowledge of the possibilities of every dyestuff is often necessary to meet the particular requirements of the consumer, and the variation of load conditions, due to differences in the quality of water, steam, and chemicals makes the dyehouse problem and individual one.

Because of this individual factor the technique of the application of dyes commands today, as it has done in the past, the best talent among those distributors who cater to the highest class of trade.

The technical department of this company is manned by chemists who have been picked because of their expert knowledge, practical experience, and demonstrated ability. Well-equipped laboratories are maintained at our different offices, for the service of our customers

You are invited to submit your problems. Your questions are welcome. Our advice in answer involves no obligation on your part.

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Back up the Boys in France—Buy W. S. S. regularly

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Manufacturing Chemists

Specializing

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TEXTILES

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Special Sizing and Finishing Products for Cotton, Wool and Silk.

CREAM SOFTENER SULPHUR BLACK
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BLEACHING OIL GLASGOW SIZING
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SULPHUR BLACK

SULPHUR OLIVE DRABS

Works at Rensselaer, N. Y.

OFFICES:

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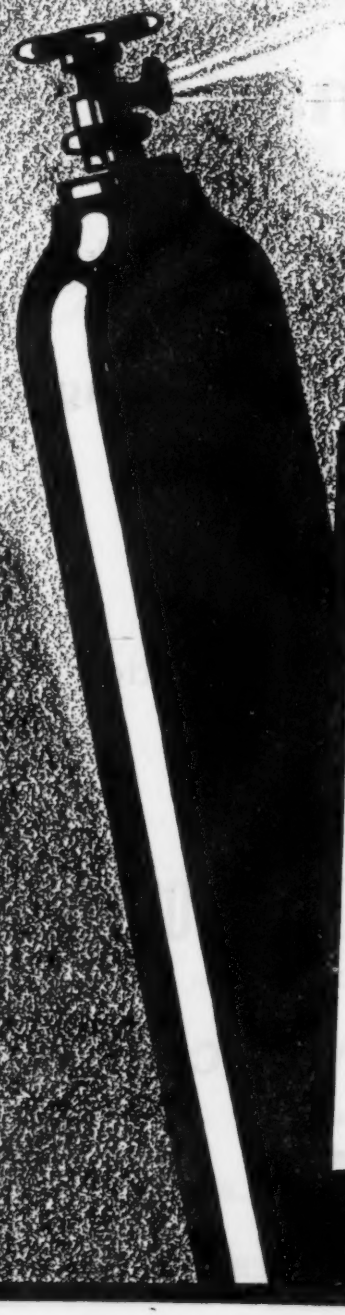
Liquid Chlorine



LIQUID CHLORINE is a distinct advance in bleaching agents. By the use of Liquid Chlorine the entire quantity of chlorine agent is available for the bleaching purposes, 100 pounds producing 100 pounds of available chlorine, or 100%, as compared with 35% of bleaching powder.

Liquid Chlorine comes in steel cylinders containing 100 pounds in liquid form. The cylinder is provided with a valve which on being opened allows the chlorine to escape in the form of gas. This gas is conducted by a pipe into a solution and dissolves completely into a clear 100% bleaching agent that contains no sediment or sludge whatever.

No material changes in your present method are necessary for you to adopt the Liquid Chlorine method. It is far simpler and easier to handle—nicer, cleaner, more efficient and scientific.

We will gladly send our representative to your mill and demonstrate Liquid Chlorine. Write today for our interesting booklet, it's free.

Electro Bleaching Gas Co.
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Navy-Blue Shades

(Fast to Light and Washing)

Developed with acetate of chrome in the thickening Paste.

Chrome Yellow **Chrome Orange**

Chrome Brown (Paste)

Chrome Blue Black

(Fast to Light and Washing)

These Colors are also for Printing on Cotton

We manufacture an extensive line of other Aniline Dyes and Intermediates

Marden, Orth & Hastings Corporation

(Established 1837)

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Boston **Philadelphia** **Chicago** **Cleveland**
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DYES

of World Wide fame

LEVINSTEIN, Ltd., of Manchester, England, have successfully manufactured dyestuffs since 1865.

Today their products are approved wherever dyes are used.

As their sole American representatives our knowledge and experience cover the entire life of the artificial dyestuff industry.

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74 INDIA STREET, BOSTON, MASS., U. S. A.

We specialize in DYES made in ENGLAND by LEVINSTEIN, LTD., and in America by E. I. DU PONT DE NEMOURS & CO.

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These two "Amalie" Brand Textile Products boast of numerous users among the South's leading cotton mills.

YOU CAN BE SURE THAT

1. The tensile strength of the fibre will be increased 15 to 20%,
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Let us ship you a barrel of each product on approval.

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Textile Department
Branches in all important cities.
Also manufacturers of "Amalie" Lubricating Oils and Greases.

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HOLLAND, MICH.

Manufacturers of

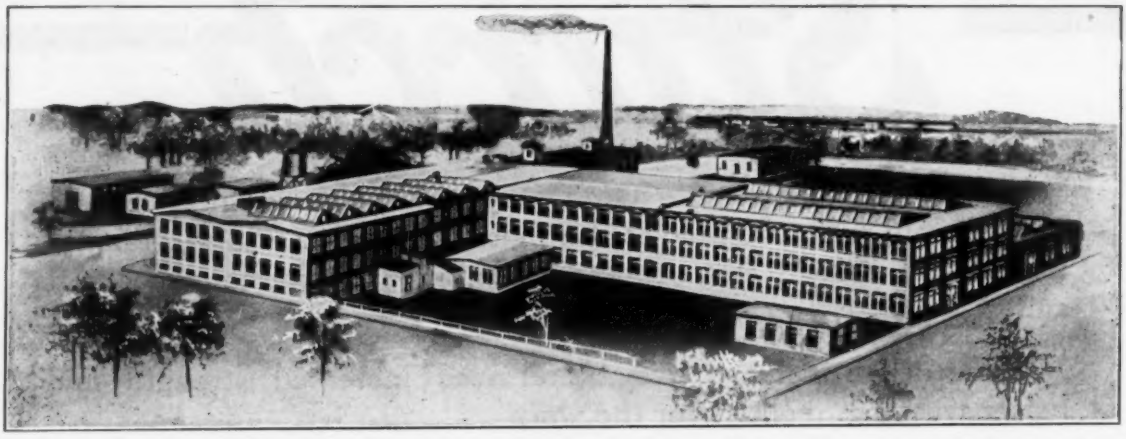
Sulphur & Basic Colors

Announce the appointment of

Dicks, David Co., Inc.

299 BROADWAY, NEW YORK

AS THEIR SALES AGENTS.



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In Skein and Warp

Our 39 years of experience in Dyeing, Bleaching and Mercerizing deserves your patronage, and when you put your processing in our hands you can always be sure of the most perfect results. The most superior quality of mercerizing is turned out. The highest grade dyes are used for colors and fast black on mercerized yarns of every description. Clean and Bloomy FAST BLACK for silk goods—the deep blue tone desired.

Silk scroop, given to yarns when required at no extra charge. Purest bleaching for piece dye work. Fancy colors dyed to match samples.

WINDING on cones, paper cop tubes for the shuttle, beams, parallel tubes and jack spools. 50,000 pounds capacity per day.

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EFFICIENCY and ECONOMY are the watch-words today. Modern mill men who hold to this motto are discarding ordinary, imperfectly refined starches and selecting those special types best suited for their individual conditions.

Some desire increased weight, all need increased strength and better weaving qualities for the warp.

You know the result you seek. We know and can provide the proper type of Starch.

Eagle Finishing

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BLEACHING and FINISHING PLANTS have learned that "any old" STARCH or DEXTRINE will not do the work. To secure the proper "feel", the desired weight, the attractive finish, careful discrimination must be exercised in selecting

STARCHES AND DEXTRINES

We manufacture all approved varieties.

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BLUE RIVER CRYSTAL
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Corn Products Refining Co.

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BRILLIANT DIRECT PINKS

ESSEX DIRECT PINK Y
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Fast to Acid and Can Be Discharged

EQUAL TO PRE-WAR TYPES

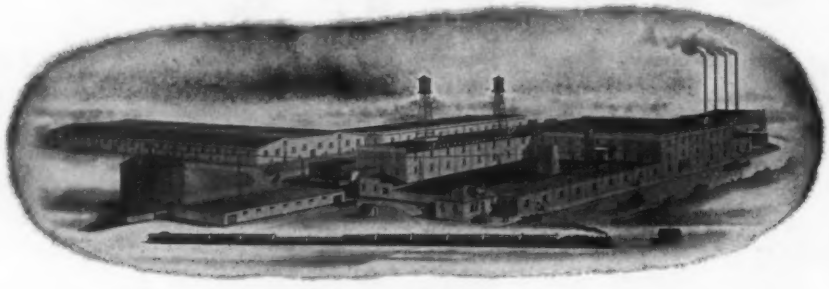
Product Samples and Dyeing Sent on Request

ESSEX ANILINE WORKS, Inc.

MANUFACTURERS OF ANILINE DYES.

39 Oliver Street, BOSTON

Works at South Middleton, Mass. **New York Office, 85 Leonard Street**



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VICTOR MILL STARCH

The Weaver's Friend

It boils thin—penetrates the warps—increases breaking strength and carries the weight into the cloth. Being thoroughly washed free of gluten and other foreign matter it gives a bleach and finish to the goods that you can get from no other starch.

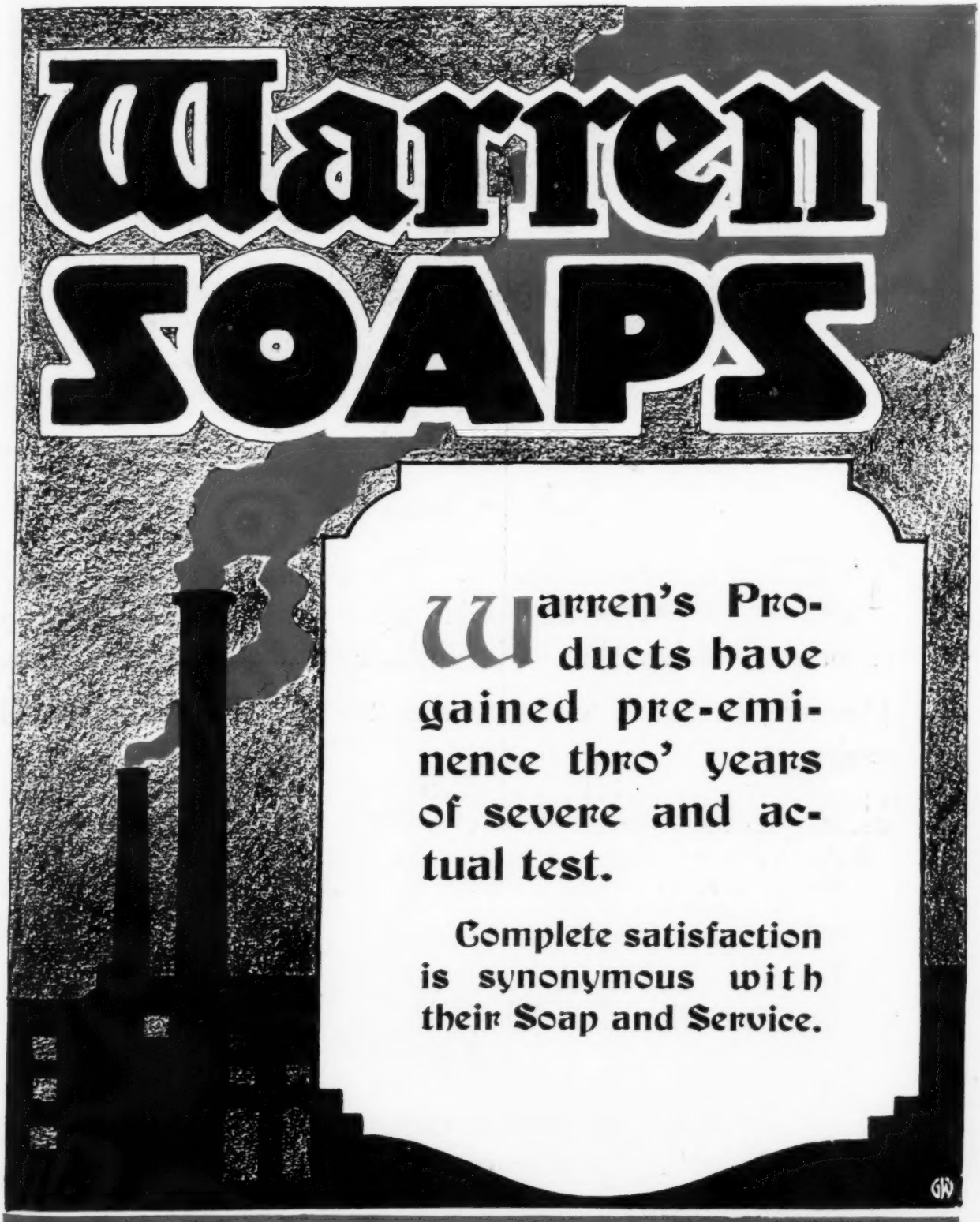
A trial order will convince you that VICTOR STARCH has no equal on the market.

The Keever Starch Company

Columbus, Ohio

Southern Agent: MR. JAMES H. MAXWELL, Greenville, S. C.

If you are not already using VICTOR STARCH call on our representative for a demonstration at your convenience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SOAPS
Warren's Products have gained pre-eminence thro' years of severe and actual test.
Complete satisfaction is synonymous with their Soap and Service.
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The Warren Soap Mfg. Co.
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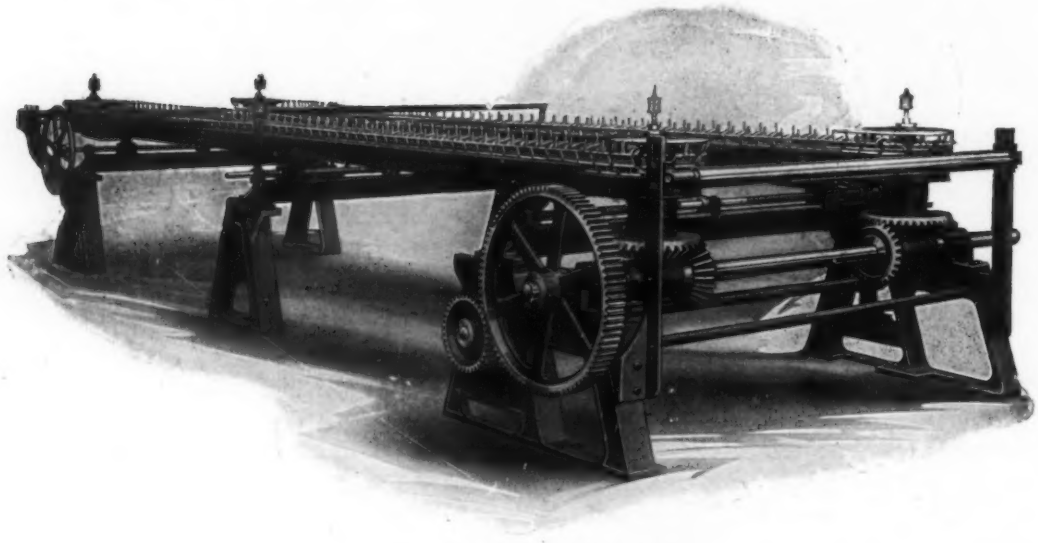

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THIS is an age of specialization. We are in strict accord with the age because we specialize exclusively on manufacturing finishing machinery, and have been doing so for nearly the last hundred years.

Therefore, we are able to meet modern standards of workmanship and service.

THE BUTTERWORTH LINE INCLUDES

Bleaching Machines Mercerizing Ranges Soaping Machines Calenders (all kinds)
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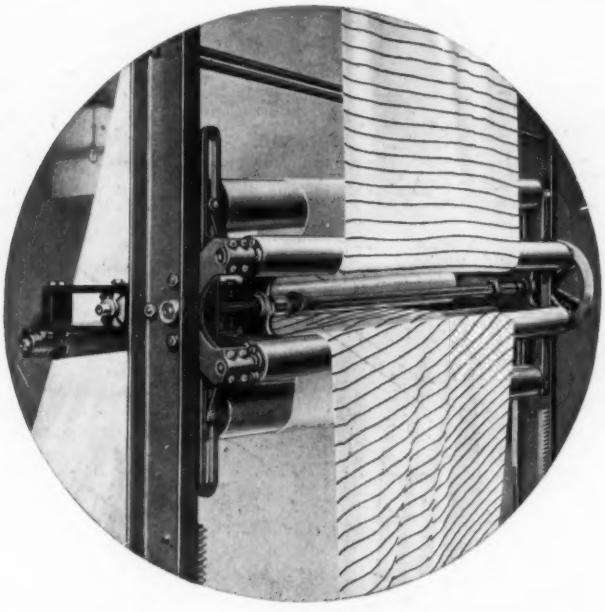

No "seconds" even in Scotch plaids after being straightened by

The "L & L" Combination Weft Straightener and Compensator

[Patented]

That's the kind of work you want to turn out. You save labor, trouble and cost, too. A hand on other work need give it but intermittent attention. Send for catalog.

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"SELF-BALANCING"

Tolhurst "Whizzers"

For

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Also "Center-Slung" Open Top Extractors

TOLHURST MACHINE WORKS

Established 1852 **TROY, N. Y.**

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EVER since 1798, we have rendered our country the best service in men and materials that could be asked.

A firm that has been doing business for 120 years—getting bigger all the time—must have something else in its makeup besides a plant and the materials to make up its products.

You can have the benefit of all these years experience. Let us show you what it means to trade with a house whose record is stamped with the seal of old Father Time himself.

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ANILINE COLORS—both Domestic and Swiss
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NEW YORK PHILADELPHIA BOSTON HAMILTON, CAN.

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Largest factory of sizing, finishing and weighting materials of America

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Special Warp Size 1809 B | Slashing Oils | Rectified Tallow

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Tell us what you make. We will tell you what to use.

We manufacture for all counts and constructions in Weaving and Finishing.

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Starches, Gums, Dextrine, Alizarine Assistant, Soluble Oil, Soap

And Every Known Material from Every Part of the World for Starching, Softening, Weighting and Finishing Yarn, Thread or any Fabric.

Special Attention Given by Practical Men to Specialties for

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Cotton, Woolen and Worsted Fabrics combining the latest European and American methods.

We Believe There is No Problem in

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FORMULAS for the best meth od of obtaining any DESIRED FINISH on any fabric cheerfully given.

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PRODUCTS:

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"Proctor" DRYERS

MAKE YOUR FUEL GO FARTHER

YOU are perhaps wasting some exhaust steam that you think cannot be used or isn't worth using. Our engineers will show you how to utilize it. There is almost as much heat in exhaust steam as in live steam. It is a pity to let it go to waste.

The Proctor method of recirculation of air causes another important saving in drying wool, cotton, knit goods, yarns and cloth, whether live or exhaust steam is used.

In some textile dryers we use the heat stored in the hot dried material for increasing economy to the maximum.

The amount of power required to operate a wool, cotton or other dryer is so important that we have minimized friction in every bearing, fan, and power-requiring operation.

It is seldom that two textile problems are the same. For that reason our engineers make a special study of every condition, the relation of the dryer to preceding and following machinery, number of men employed, heat available, methods of handling material to and from the dryer, quantity to be dried, power available, cost of power, etc.

These are the problems that cannot be solved correctly without broad experience in drying. They are problems for the specialist.

We are the foremost specialists in drying, having a record of over 30 years behind us. We will gladly advise to your best interests, freely and frankly. Maybe we will recommend a Proctor Dryer. Maybe we won't. It all depends upon conditions. Our specialized knowledge will prove of value to you.

Proctor Automatic Dryer for knit goods in the string, toweling, etc.

The Philadelphia Textile Machinery Company

7th St. & Tabor Road, Philadelphia, Pa.
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Charlotte, N. C. H. G. Mayer—Realty Building.

DELAHUNTY Dyeing Machiner

THE first revolving cylinder dyeing machine made and operated in this country was manufactured by the Delahunty Dyeing Machine Company. Since the year 1880 we have given to the textile industry many superior machines for dyeing, bleaching and oxidizing raw stock cotton, waste stock, linters and articles of knitted construction.

In our circulating machines, sulphur and cold vat colors are dyed with perfect success. The Brandwood System of dyeing warp on beams, as used in the works of the Elton Cop Dyeing Co., of Bury, England, has been delegated solely to this establishment for the manufacture and sale in the United States. This machine will dye at one operation one to twelve beams of indigo, hydron, indanthrene and other oxidation colors, besides possessing other valuable features which aid production and lower the cost of dyeing.

The machines of our manufacture of greatest import to the textile industry are:

Revolving Cylinder Raw Stock Dyeing Machinery.

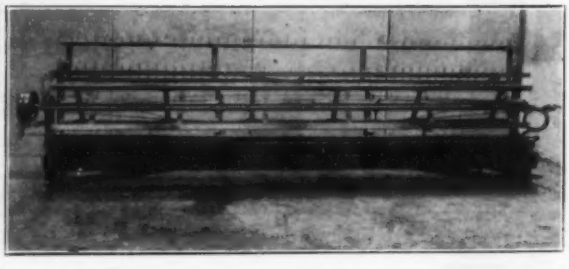
Revolving Cylinder Hosiery Dyeing and Bleaching Machines.

Hosiery, Oxidizing and Tom Tom Machines.

Special machines are made for aniline, sulphur, indigo and other vat colors.

Delahunty Dyeing Machine Company
Pittston, Pa.

COCKER REELS



Machine illustrated above is the lightest running and most productive reel built, and the most easily handled by operators.

The method of breaking and doffing is unequalled.

Correspondence solicited.

Cocker Machine & Foundry Co.
Builders of Warpers, Beamers, Warp Dyeing Machines and Reels.
GASTONIA, N. C.

A Typical Mill Village Laundry Installation.

Stops the Family wash day lay-offs

How the Mill Village Laundry keeps the Hands at the Mill

In these days, when labor is scarce and mills are operating to capacity, mill owners are going to great lengths to keep all hands working full time. Executives have found it well worth while to make mill surroundings attractive to labor— to build schools, homes, stores, theatres and clubs, to keep the help contented and happy.

And in this connection, one problem that seriously affects mill production is the weekly family wash day lay-off. This is particularly marked where entire families are employed. To remedy this situation mill owners are installing complete laundry equipment to take care of the family washing of their employees. It cuts down the number of absentees to a minimum and increases mill output.

The Mill Village Laundry can solve **your** wash day absentee problem in the same way. Our engineers have made a thorough study of mill conditions and can give you valuable suggestions and assistance in planning such a plant. The facts are interesting. Send for them.

The American Laundry Machinery Co.

Specialty Dept. H. G. Mayer, Southern Agent, Realty Building, Charlotte, N. C. **Cincinnati, O.**

Also manufacturers of the American Hydro-Extractor —Automatic Underwear Press—Rotary Hosiery Press —Rotary Fulling and Dyeing Machines.

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PROVIDENCE, R. I.

NEW YORK OFFICE
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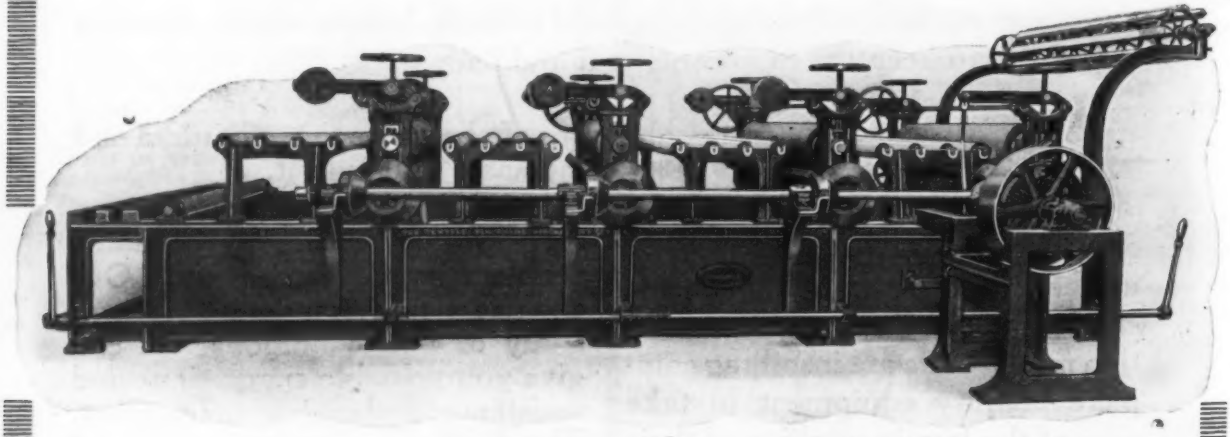
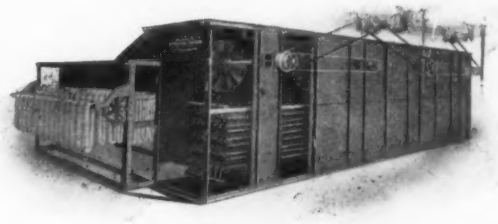
Machinery for Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Textiles, Warps, and Narrow Fabrics



156—Four-Compartment Open Soaper



Automatic Dryer for Cotton, Worsted, Silk and Jute Yarns.

Complete Equipments for

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Stock, Yarn, Hosiery, Toweling, Underwear.

STOCK—Dyeing, Bleaching, Carbonizing and Drying.

YARN—Scouring, Dyeing, Bleaching and Drying.

Toweling, Underwear } Complete Plants for Dyeing, Bleaching, Drying and Finishing.

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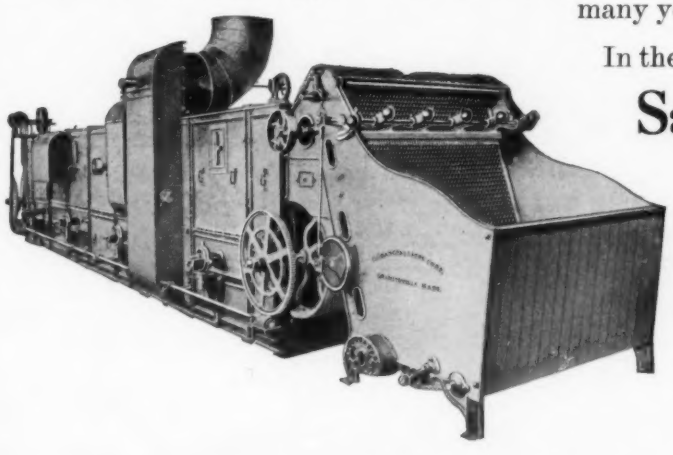

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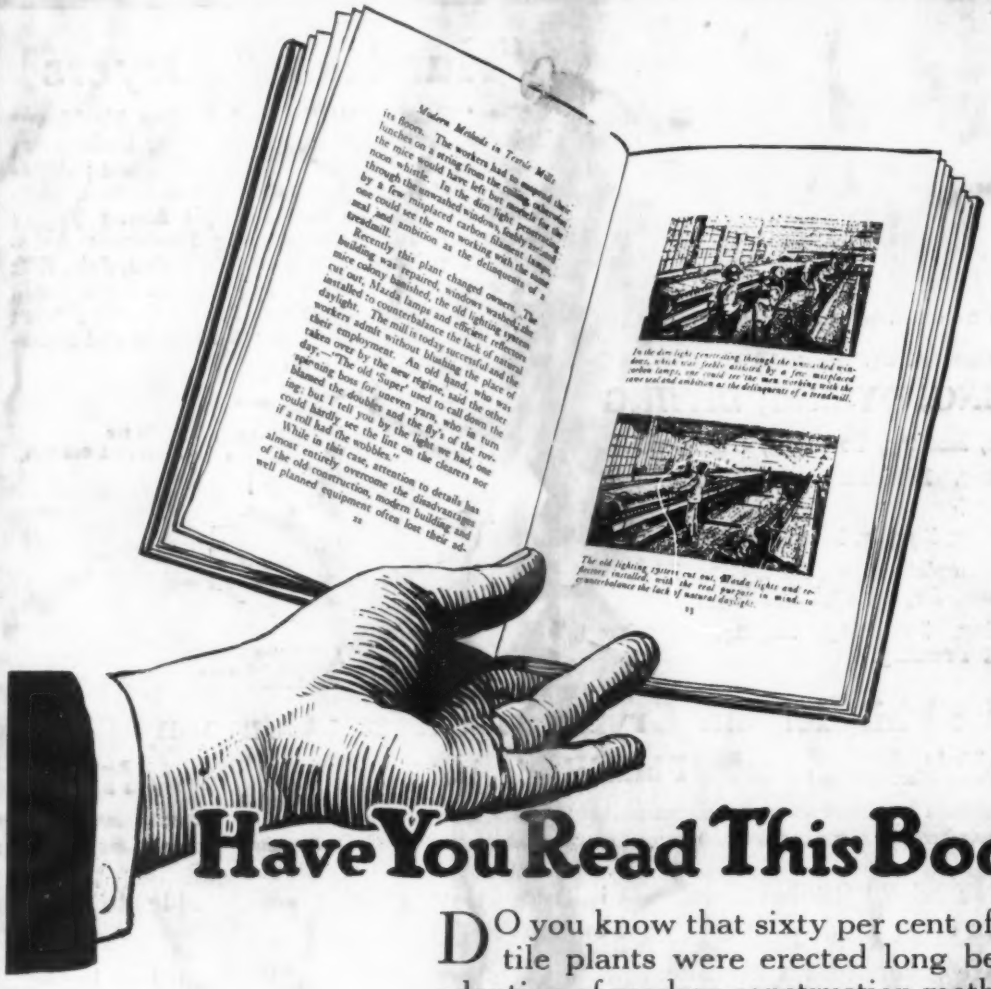
Modern Methods in Textile Mills
its floors. The workers had to suspend their
lunches on a string from the ceiling, otherwise
the mice would have left but crumbs for the
noon whistle. In the dim light penetrating
through the unwashed windows, faulty wiring
by a few misplaced carbon filament lamps
one could see the men working with the same
mail and ambition as the delinquents of a
treadmill.
Recently this plant changed owners. The
building was repaired, windows washed, the
mice colony banished, the old lighting system
cut out, Nitrada lamps and efficient reflectors
installed to counterbalance the lack of natural
daylight. The mill is today successful and the
workers admit without blushing the place of
their employment. An old hand, who was
taken over by the new regime, said the other
day,—"The old 'Super' used to call down the
spinning boss for uneven yarn, who in turn
blamed the doublers and the fly's of the roving; but I tell you by the light we had, one
could hardly see the lint on the clearers nor
if a roll had the wobbles."
While in this case, attention to details has
almost entirely overcome the disadvantages
of the old construction, modern building and
well planned equipment often lost their ad-
25
In the dim light penetrating through the unwashed windows, which was feebly assisted by a few misplaced carbon lamps, one could see the men working with the same zeal and ambition as the delinquents of a treadmill.
The old lighting system cut out. Nitrada lights and reflectors installed, with the result you have in mind, to counterbalance the lack of natural daylight.
23

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